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ABSTRACT

The annotated bibliography which constituted the bulk of this masters thesis focuses on material dealing with rhetorical invention and the act of creativity and should be useful to the teacher of composition. Articles and books from other disciplines, as well as those from the field of English, are included. Items are divided into four categories: general works on invention, taxonomic heuristics, discovery through persona, and ultra-observational approaches. Each of these categories is subdivided into sections on theory, practice, and research. A list of references cited and an index of authors are included. (JM)

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THE INVENTION PROCESS IN COMPOSITION: A SELECTED, ANNOTATED BIBLIOGRAPHY, 1950-1974

A Thesis

by

LINDA ELAINE HOYER

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CHAPTER I

THE LITERATURE OF INVENTION

Of the five parts of rhetoric, the first one is "inventio," which is concerned with the invention or discovery of ideas or arguments needed in discussing a subject. The original rhetorician, in other words, had to find arguments which would support whatever case he was advocating. Cicero saw the rhetorician as having three means to rely on in finding appropriate arguments: his innate genius, his own diligence, or a system of discovery. The man who had an intuitive sense for forming appropriate arguments or points obviously had the greatest advantage. Without this intuition, a man's recourse was either rigorous industry or the utilization of some argument-finding method. Invention, therefore, was defined as this

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The style of the narrative sections of this thesis follows the form used by PMLA and the MLA Style Sheet. The bibliographical entries and annotations follow the bibliographical form used by PMLA.

system of finding arguments

However this definition of invention has since been modified. As E. M. Jennings points out,[1] original rhetoricians devised the topical system of invention under the assumption that the one using it already knew what he wanted to accomplish, while the student today usually does not. Also some of the basic aims of rhetoric have changed, thereby affecting invention. Richard Ohman points out that classical rhetoric assumed that the speaker had previous knowledge of what was true, in contrast to modern rhetoric which is "the pursuit--and not simply the transmission--of truth and right."[2] In light of this change in rhetorical emphasis, invention can no longer be only narrowly defined as a system to discover arguments. Instead it must be more fully defined as a dynamic, mental--and often physical--systematic reaarangement or transformation of information, enabling additional insight, whether it narrowly focusses on discovery of subject matter or persona, or more broadly on the composing process as

a whole. With this wider definition in mind, I have compiled the following selected, annotated bibliography of useful works on invention published from 1950 to 1974 in order to help the composition teacher.

While the definition of invention has changed, the need for invention still exists. Jerome Bruner states that teaching discovery is the primary aim of the teacher:

> Our aim as teachers is to give our student as firm a grasp of a subject as we can, and to make him as autonomous and self-propelled as we can--one who will go along on his own after formal schooling has ended. . . .For the person to search out and find irregularities and relationships in his environment he must be armed with an expectancy that there will be something to find out, and once aroused by expectancy he must devise ways of searching and finding.[3]

James Moffett further extends the composition teacher's responsibility for "devising ways of searching and finding:"

> A series of writing assignments is a series of thinking assignments and therefore a sequence of internal operations. All stages of a developmental sequence

> are crucial and none can be left out. Teachers have got to become more aware about this sequence and more aware of the effects in the student of his trying to do what we ask.[4]

For the composition teacher, the results of taking action on this responsibility are quite valuable. James M. McCrimmon says:

> When students tell us they have nothing to write about, they do so, I suspect, because they do not know how to go about this search; perhaps they do not know that such a search is necessary, but assume that ideas spring full grown from an author's head as a result of some mysterious inspiration. Surely it is part of the professional responsibility of the composition teacher to provide some help in this area, if not for the student's sake, at least for the teacher's since he has to read these papers that have nothing to say.[5]

Encouraging this search or discovery aids teaching and helps student writing. As D. Gordon Rohman says, "Good thinking can produce good writing; and conversely, without good thinking, good writing is impossible."[6] Not only can invention aid the student in composition but with a long-range perspective it may provide benefits for both teacher and student,

according to Richard Larson:

> The student's ability to discover ways of talking about his observations and experiences . . . may be what is most valuable to him outside the English classroom in his later role as professional man and citizen. To decide that we will help students to discover and perfect ideas may be one way to define for ourselves a role that adult citizens can applaud. And the highest of tributes, even our students may esteem more than they do now our courses in composition.[7]

Therefore, Bruner and Moffett emphasize the teacher's responsibility to aid the student by being well informed about discovery and by presenting discovery procedures. In addition, McCrimmon and Rohman emphasize the benefits for both the student and the teacher, for the use of invention in composition produces "good thinking" from the student, resulting in "good writing" for the teacher.

It is my view that the teacher of composition needs to more carefully consider the need for invention in composition and his responsibility to supply to the student heuristics for invention. In-depth reading of pertinent literature would be the most

available and thorough means of preparing for such responsibility.

The teacher in search of such articles and books would most probably first seek a bibliography, often to find it of little help. For example, Albert Kitzhaber's A Bibliography of Rhetoric in American Colleges: 1850-1900[8] lists articles and books on rhetoric in general; however, he seems to have omitted specific works on invention. Moreover, it is not annotated, and the most recent entry is dated, oddly, 1926. This bibliography would not be of much use to the teacher seeking a modern approach to rhetorical invention. John Spargo's A Bibliographical Manual for Students of the Language and Literature of England and the United States[9] is similar to Kitzhaber's. While it does have a brief section on rhetoric and oratory, it presents works on rhetoric in general and does not focus on invention. The Louis Milic bibliography, Style and Stylistics--An Annotated Bibliography,[10] again only presents a few articles dealing with rhetoric, and these do not deal

specifically with invention. The Edward Jenkinson bibliography--Books for Teachers of English: An Annotated Bibliography[11]--has more updated entries than the previous ones, and these entries are annotated. However, he never gives any direct references to works on invention, while my bibliography focusses specifically on invention.

Some other bibliographies do deal with invention, however. J. Cleary and F. Haberman's Rhetoric and Public Address: A Bibliography, 1947-61[12] is probably the least helpful of these. It has only three articles concerning invention, and the most valuable concerns invention in the English rhetorics between 1500 and 1650. Although J. C. Rowland's An Annotated Bibliography on the College Teaching of English, 1957-1963[13] gives more recent articles than Cleary and Haberman and is annotated, it only covers articles up to 1963; my bibliography covers articles through 1974. Joyce Anderson's thesis, "Teaching Composition: A Selected, Annotated Bibliography, 1960-1972"[14] is one of the best sources for

information on invention in connection with the teaching of composition. Her bibliography is annotated, classified into helpful divisions, and evaluated as to teaching practicality. However, her thesis does not focus specifically on invention but on the three basic parts of rhetoric. Also this bibliography relies heavily on the literature of invention in the field of English; she seldom uses material from other disciplines in the area of invention that could be applicable to the classroom teaching of composition. As Sister Janice Lauer has pointed out, there is a need for an interdisciplinary pooling of resources on invention: "Unless both the textmakers and the teachers of composition investigate beyond the field of English, beyond even the area of rhetorical studies for the solution to the composition problem, they will find themselves wandering in an endless maze."[15] In this same article, Sister Lauer has compiled a bibliography dealing with studies in disciplines other than English: Psychological Bibliography on Heuristics.[16] However, this

bibliography does not annotate material, classify it into convenient pedagogical divisions, or evaluate its applicability to the composition teacher.

My bibliography, therefore, bridges the gap between the aid offered by these bibliographies and the needs of the composition teacher seeking more information on invention. Therefore, unlike the Kitzhaber, Spargo, and general rhetorical bibliographies, my bibliography focusses on invention, helping the teacher specifically searching in this area. Unlike the Anderson bibliography, I include useful articles and books from other disciplines and those in the field of English that could be useful to the composition teacher. Unlike the Lauer bibliography, I arrange, annotate, and evaluate these interdisciplinary sources in a manner useful to the teacher of composition. Although many of my sources have appeared in other bibliographies, my work has the distinction of being arranged, annotated, and evaluated with specific focus on rhetorical invention, and having at all times as my major criterion usefulness

to the teacher of composition.

This criterion dictated the twenty-four year span I chose to cover, since the composition teacher needs to be familiar with some of the major preliminary work done in invention in order to be adequately informed. In the field of English, the emphasis on invention again became prominent in 1965 with the reception of Rohman's work in prewriting.[17] However, much earlier work had been done in invention--under the label "problem solving"--in other disciplines, with major findings appearing in 1950. Therefore, in order to provide the teacher with some of the major contributions from these disciplines, I needed to extend the boundaries to 1950. And because I thought the teacher needed to have at his disposal the most current material possible, I chose to close with 1974.

To maintain this focus on usefulness to the teacher, I also had to classify the sources in a way most helpful to the teacher. I chose to adopt the divisions suggested by Richard Young and Alton Becker in "Toward a Modern Theory of Rhetoric: A Tagmemic

Contribution."[18] Although the divisions they present have been given in other works under various labels, this article best delineates and qualifies the categories. Also, while the labeling used by Young and Becker may be familiar chiefly to those with linguistic backgrounds, the concepts are easily understood by anyone and adequately categorize the work done on invention in various disciplines. Young and Becker divide the heuristics--the discovery steps or procedures--of invention into two categories: taxonomic and epistemological heuristics. Taxonomic heuristics concerns discovering a way to reach a predetermined goal--usually, in composition, through <u>topoi</u> or topics. Epistemological heuristics concerns discovery "about how we come to know something."[19] This latter division has two subdivisions: the first focusses on discovery through the internal and external persona; the second focusses on multi-observation approaches to broader composition problems. Utilizing these three categories, I have divided my sources into four sections: (1) a section composed of general works

dealing with all aspects of the invention process, and sections dealing with (2) taxonomic heuristics, (3) discovery through persona, and (4) multi-observation approaches. For example, if an article talked about problem solving but used the phrase in general terms of discovery, I included it under General Works. However, if an article dealt with problem solving but used that term in specific reference to a certain many-faceted approach, then I included it under the section dealing with multi-observation approaches. In similar manner, the difference between categorizing a source under taxonomic heuristics or under one of the epistemological heuristics depended on the intent of the article. If the writer of the article suggested that his approach be used by one with a predetermined goal, then I placed the article under taxonomic heuristics. If, however, the technique was suggested as a means of exploring a problem area or expressing one's inner feelings, then I placed the article under the appropriate epistemological heuristic. That is not to

say that some of these sources may not be employed in other ways, for the final difference between taxonomic and epistemological heuristics depends on the writer's purpose or aim. All in all, the structure I have chosen is not only for the teacher's convenience; it also serves to fully define invention for the teacher as a dynamic, varied yet systematic act of discovering subject matter, persona, or the composing process as a whole.

The focus on the usefulness to the teacher led to the subdivisions of theory, practice, and research for each of the four basic sections. If I found a source concentrated on the principles of invention in a manner theoretically useful to the teacher, I included it under theory; if the source presented techniques or procedures applicable to classroom teaching, I included it under practice. However, as Henry David Thoreau points out, these two areas are not enough for the informed person:

> No way of thinking or doing, however ancient, can be trusted without proof. What everybody echoes, or in silence

> passes by as true today, may turn out to be falsehood to-morrow, mere smoke of opinion. . . .[20]

Therefore, to make the bibliography really useful to the teacher, I had to add a third subdivision, research. This category includes some results of studies done on broad approaches to invention, such as the use of tagmemics, and also some of the various teacher- and student-dependent variables in the classroom that could greatly hinder or aid invention.

After finding a work useful, annotating it, and classifying it under the previously mentioned categories, I evaluated it. If I included the work under theory and it provided the teacher with rationales or principles concerning invention techniques, then I labeled the work either "excellent," "good," or "fair." If I included the work under practice and it presented procedures or techniques that were applicable to the classroom situation, then I labeled the work "specific," "good," or "applicable." If, however, I included the work under research and it presented material that could be applied to the teaching of invention in

composition, then I labeled the work "good," or "applicable."

In all, the design of my bibliography supplies useful and convenient sources of information on invention to the teacher of composition. I have divided my sources from various disciplines representative of as many different approaches to invention as I could find, for, while there are three major classifications of approaches to invention, there are many variations. By creating separate sections for these three basic classifications--taxonomic heuristics, discovery through persona, and the multi-observation approach--I have forced the teacher to realize that all three have great value and are useful approaches to invention in composition. As T. J. Boley points out in "Rhetorical Invention: A Synthesis of Contemporary Concepts,"[21] the teacher must be informed about the alternatives in invention in order to most suitably choose the appropriate invention approach to a given problem or situation. Therefore, while this bibliography may inform the teacher on invention, he can

succeed only if he diagnoses his problem accurately and then chooses and applies the relevant information and technique.

Also my bibliography is useful to those with differing backgrounds in invention. For example, the section devoted to the general works can help those with a broad and a narrow background in invention. Clearly useful to those with little or no background in invention, this section supplies rationales for the need of discovery in education and the need in English in particular. The sources I have included define discovery by examining the processes as well as the products of creation. For those with some background in invention, this section includes surveys of the varying approaches to teaching invention. In addition, I have included several specific experiments and applications dealing with discovery for those with more advanced backgrounds.

Since the section on taxonomic heuristics basically deals with classical topics, I have selected various modifications of classical topics rather than

simply repeating sources, in the hope that among these variations of topics appropriate ones might be found to fit a given need. However, taxonomic heuristics does not deal only with topics, and neither does this section of my bibliography. I have supplied various systems of analysis which aim at achieving predetermined goals much as do the classical topics.

In accord with Young and Becker's suggestion, the section on discovery through persona explores internal and external variables. For example, I have included several sources that help the writer to explore his feelings, to discover his personal views and how these differ from another's views. Also I include some sources that deal with the external considerations that must be made in discovering the appropriate way to communicate to a given audience. Obviously, these emphases suggest much more substantial and efficient ways of writing than merely telling the student to sit down and write. For those who have little background in this area there are also explanatory references.

The section on multi-observation approaches may prove to be the most unfamiliar to the composition teacher, since the material in this section is more largely drawn from other disciplines than that of the previous sections, combining sources from such varied areas as business, psychology, and linguistics. Jerome Bruner[22] and Richard Larson[23] elaborate on the value of this approach for both the student and the teacher.

While Young and Becker recognize both the taxonomic and epistemological approaches, the general reception of these two basic approaches has been extreme--both sides ignoring the possibilities of the opposing approach. However, both systems have value in the creation of discourse. My bibliography offers the opportunity for discovery of the value of both approaches as well as their practical application.

NOTES

[1] E. M. Jennings, "A Paradigm for Discovery," CCC, 19 (October 1968), 192.

[2] Richard Ohman, "In Lieu of a New Rhetoric," CE, 26 (October 1964), 19.

[3] Jerome Bruner, "The Act of Discovery," Harvard Educational Review, 31 (October 1961), 22-23.

[4] James Moffett, "I, You and It," CCC, 16 (December 1965), 243.

[5] James M. McCrimmon, "Will the New Rhetorics Produce New Emphases in the Composition Classroom?" CCC, 20 (May 1969), 127.

[6] D. Gordon Rohman, "Pre-writing: The Stage of Discovery in the Writing Process," CCC, 16 (May 1965), 106.

[7] Richard Larson, "Discovery through Questioning: A Plan for Teaching Rhetorical Invention," CE, 30 (November 1968), 132.

[8] Albert Kitzhaber, A Bibliography of Rhetoric in American Colleges, 1850-1900 (Denver: Denver Public Library, 1954).

[9] John Spargo, A Bibliographical Manual for Students of the Language and Literature of England and the United States, 3rd ed. (New York: Hendricks House, 1956).

[10] Louis Milic, Style and Stylistics--An Analytical Bibliography (New York: The Free Press, 1967).

[11] Edward Jenkinson, Books for Teachers of English: An Annotated Bibliography (Bloomington: Indiana University Press, 1968).

[12] James Cleary and Frederick Haberman, Rhetoric and Public Address: A Bibliography, 1947-61 (Madison and Milwaukee: The University of Wisconsin Press, 1964).

[13] J. Carter Rowland, An Annotated Bibliography on the College Teaching of English--1957-1968 (Champaign, Illinois: NCTE, 1966).

[14] Joyce LaVerne Anderson, "Teaching Composition: A Selected, Annotated Bibliography, 1960-1972," Thesis Texas A&M University 1973.

[15] Sister Janice Lauer, "Heuristics and Composition," CCC, 21 (December 1970), 396.

[16] Lauer, pp. 396-404.

[17] Rohman, pp. 106-112.

[18] Richard Young and Alton Becker, "Toward a Modern Theory of Rhetoric: A Tagmemic Contribution," Harvard Educational Review, 35 (Fall 1965), 450-468.

[19] Young and Becker, p. 457.

[20] Henry David Thoreau, Walden, in Home Book of American Quotations, ed. Bruce Boyle (New York: Dodd, Mead & Company, 1967), p. 420.

[21] Tommy J. Boley, "Rhetorical Invention: A Synthesis of Contemporary Concepts," Dissertation The University of Texas at Austin 1970, pp. 84-85.

[22] Bruner, pp. 21-22.

[23] Larson, pp. 126-134.

CHAPTER II

GENERAL WORKS ON INVENTION

Bruner [4] states the need for an emphasis on invention or discovery in education in general:

> Emphasis upon discovery in learning has precisely the effect upon the learner of leading him . . . to organize what he is encountering in a manner not only designed to discover regularity and relatedness, but also to avoid the kind of information drift that fails to keep account of the uses to which information might have to be put. It is, if you will, a necessary condition for learning the variety of techniques of problem-solving, of transforming information for better use, indeed for learning how to go about the very task of learning. Practice using discovery for oneself teaches one to acquire information in a way that makes the information more readily viable in problem-solving. (p. 26)

Today, when students find very little "relevance" in composition courses, teachers of composition need what Bruner says discovery has to offer. David Harrington [28] focusses on this need, saying that all that can be created "on organizing, correcting, and polishing the theme has already been thought of or

discovered," and that we need to emphasize "what goes in the discovery and development of ideas" (p. 7).

Although the need for invention may be obvious, a teacher cannot utilize it until he knows what it is. Chapter II provides pointed definitions of discovery along various lines. For example, Bruner [4] defines invention as "a matter of rearranging or transforming evidence in such a way that one is enabled to go beyond the evidence so reassembled to additional insights," (p. 22). While this section supplies several sources that add to Bruner's theoretical definition of invention--such as Edward DeBono [7] and Marcia McElvaine [18]--I have also included several sources that define the invention process in practical terms. For example, Robert Parker [21] sees invention as not only a mental activity but also the kind of physical activity mentioned by John Dewey [8]. In addition to practical and theoretical definitions, I have included other sources, such as Young and Becker [26], which define invention by analyzing its various approaches.

The value of this chapter, then, is that it suggests material for all levels of background, and therefore, can help any composition teacher. Equally important, this chapter points out the need for discovery in the classroom and ways to achieve it.

Abbreviations

CCC	College Composition and Communication
CE	College English
EJ	English Journal
ERIC	Education Resources Information Center
NCTE	National Council of Teachers of English
PMLA	Publications of the Modern Language Association of America

Notation Form and Cross Referencing

[ ] indicates the entry's number in my bibliography.

( ) indicates other sources on a similar topic.

Theory

ANDERSON, JOYCE LAVERNE. "Teaching Composition:

A Selected, Annotated Bibliography, 1960-1972."

Thesis Texas A&M University 1973. [1]

Anderson's bibliography covers the contemporary literature on the three basic areas of rhetoric; however, her section "Invention" is one of the best sources of contemporary literature on invention in the field of English. In this section, she alphabetically organizes the literature under theory, practice, and research, then annotates, and evaluates each entry. This source is of great use to the teacher seeking information about the theoretical or practical sides of invention: excellent. (15)

BERTHOFF, ANN E. "The Problem of Problem Solving."

CCC, 22 (May 1971), 237-242 [2]

Berthoff addresses her essay to the "psychological inadequacies of problem solving as a pedagogical concept." While stating that the De Bono [104] and Gordon [103] works are sound sources consistent with English aims, Berthoff basically finds Lauer's bibliography [15] full of perplexed and confused sources. In her attack on Lauer's "philosophically shallow" heuristics, Berthoff brings out some good points that should be considered by the teacher deciding to choose Lauer's approach. Lauer refutes these accusations in another article. [16] For the teacher who wants to know both sides of this issue: good.

BOLEY, TOMMY J. "Rhetorical Invention: A Synthesis of Contemporary Concepts." Dissertation The University of Texas at Austin 1972. [3]

Boley states that the present swing toward rhetorical invention has created a conflict between those advocating a topical system and those advocating the approach which creates new ideas. Using Richard E. Young and Alton L. Becker's categories [26], Boley divides current invention approaches into taxonomic heuristics, and epistemological heuristics. Boley has four goals in his paper: to classify present procedures and systems of invention, to present a solution to the conflict, to present a rationale for the creation of a system of logic suitable for freshman English (68), and to compare the epistemological approach of Young, Becker, and Pike [120] to Kinneavy's modes of description, narration, and classification. (58) Boley supplies the teacher of composition with a new overview of the invention approaches: excellent. (38, 129)

BRUNER, JEROME S. "The Act of Discovery." Harvard Educational Review, 31 (Winter 1961), 21-32. [4]

Bruner defines discovery as "a matter of rearranging or transforming evidence in such a way that one is enabled to go beyond the evidence so reassembled to additional insights." He then describes the benefits that can be derived from learning through discovery: increasing intellectual potency, shifting from extrinsic to intrinsic rewards, learning the heuristics of discovery, and aiding memory processing. (7) A very thorough explanation and report on the benefits of discovery teaching: excellent. (8, 9, 14)

BRUNER, JEROME S. The Process of Education. Cambridge, Massachusetts: Harvard University Press, 1965. [5]

Here, Bruner reflects the spirit of the 1959 Woods Hole Conference in searching for new paths to learning and teaching by focussing on the conference's discussion in the areas of structure, learning readiness, intuitive and analytical thinking (7, 104), learning motivation, and teaching aids. Throughout the book, especially in "The Importance of Structure," Bruner makes a plea for the teaching of discovery. Here Bruner gives the results of the Committee for School Mathematics and the Arithmetic Project of the University of Illinois' research on discovery as an aid to teaching, plus suggestions on the principle and practice of heuristics and the restructuring of curriculum to meet the needs of discovery. This book supplies the teacher with good, general background information: good. (4, 15)

_____, ROSE R. OLVER, PATRICIA M. GREENFIELD, et al. Studies in Cognitive Growth: A Collaboration at the Center for Cognitive Studies. New York: John Wiley & Sons, Inc., 1966. [6]

In this book, Bruner compiles fourteen papers resulting from a six year study period. Among other areas, these papers emphasize the role of heuristics in the growth of perception and problem-solving (85, 86) and the effect of the culture on these heuristics. (15) This source provides necessary background for a teacher who has a good understanding of invention and desires to apply it thoroughly: excellent. (5, 39, 127)

DE BONO, EDWARD. Mechanism of the Mind. New York:

Simon and Schuster, 1969. [7]

In this book, De Bono describes the mind as a working mechanism. The first section explains the simple building units which create the organization of the mind. The second section takes this theoretical mechanism, places it in realistic conditions, and examines the limitations of thinking and the advantages and disadvantages of the ways the mind works. In this section thinking is divided into four basic categories: natural, logical, mathematical, and lateral. (104) In viewing these four types of thinking, De Bono sees each as partially natural and partially the result of artificial developmental devices. The two sections are individual, not relying on the preceding or following section. This book is an exceptional source on inventive theory and application: excellent. (14, 33, 103, 111)

DEWEY, JOHN. "Thinking in Education." in James Raths,

John R. Pancella and James S. Van Ness, eds.

Studying Teaching. Englewood Cliffs, New Jersey:

Prentice-Hall, Inc., 1971. 95-103. [8]

Dewey explains the results of and the needs for a primary emphasis on "thinking," or invention, in education. While theorizing about how invention and thinking may be accomplished, Dewey states that "the important thing is that thinking is the method of an educative experience." He lists five essentials for the successful promotion of this method: the pupil must be placed in a real experience that draws interest by its own merit; he must discover a real problem from this experience (72, 75); he must have and use the information to deal with this problem; he must be responsible to organize and develop possible solutions

that occur (129); he must be able to test his solutions and discover their validity for himself. This source points out some valuable prerequisites for the use of such learning aids as simulation games in the promotion of invention: good. (5)

EMIG, JANET A. "The Uses of the Unconscious in Composing." CCC, 15 (February 1964), 6-11. [9]

Emig stresses the difference between the common systematic approach to writing and the unconscious approach. She also suggests several methods of stimulating (85, 86) and recognizing a student's individualization in writing, such as allowing various methods of recording ideas (98) as on a typewriter, on a dictaphone, or by pen. The teacher needs to recognize these idiosyncrasies as individualized, unconscious writing habits and not inhibit the student's creativity by inhibiting his habits. (8, 13) Therefore, she also sees the need for making certain allowances such as flexible deadlines, flexible frequency of assignments, arbitrary size paper, and even puce-colored ink. This article points the need for individualizing the approach to invention: good. (35)

GRUBER, HOWARD E., GLENN TERRELL and MICHAEL WERTHEIMER, eds. Contemporary Approaches to Creative Thinking. New York: Atherton Press, 1962. [10]

This Gruber, Terrell, and Wertheimer book is a sequel to Contemporary Approaches to Cognition from an earlier symposium. Among the writers of the included articles in this book are Jerome Bruner (4, 5, 6), Herbert Simon, Mary Henle, David McClelland, Robert Crutchfield, and Robert Macleod, each taking a different approach to invention. Among the approaches they take are externalizing creative behavior, studying computers which simulate human thought processes,

and studying historical and experimental material. The book provides a variety of ways to view inventive thinking. This article most benefits the teacher seeking an experimental approach to invention: good.

GUILFORD, J. P. "The Structure of the Intellect." Psychological Bulletin, 53 (December 1956), 267-293. [11]

Guilford makes a listing of intellectual factors, dividing these under the headings of cognition (discovery), production (convergent and divergent thinking), and evaluation. Discovery is arranged according to three contexts of thinking: figurative, structural, and conceptual. (39, 48) These are further divided along the classifications of the type of thing discovered such as fundaments, classes, patterns or systems, relations, problems, and implications. This article aids in explaining the different manifestations of inventive thought: good. (7, 14, 37)

HILGARD, ERNEST R. "Creativity and Problem Solving." in Harold H. Anderson, ed. Creativity and Its Cultivation: Addresses Presented at the Interdisciplinary Symposia on Creativity--Michigan State University. New York: Harper and Brothers Publishers, 1959. 162-180. [12]

Hilgard proposes how to best encourage creativity and problem solving approaches among daily contacts. (46) He classifies problem solving and creativity approaches into two categories: the first approach emphasizes problem solving in the higher mental processes--learning and thinking--although the thought

does not necessarily have to be original; the second approaches problem solving as a personality manifestation as well as a cognitive one and emphasizes creativity and originality. (26) He also gives the psychological research material for the two approaches as well as the implications for college teaching and stresses the need for the creative, inventive approach in education: good. (16, 94)

KAUFMAN, WALLACE. "The Inhibited Teacher," EJ, 60 (March 1971), 382-388 [13]

Basing this article on personal observations, Kaufman proposes that, although teachers praise discovery or rhetorical invention, actually teachers "abhor the act of putting things together in any way that significantly varies from the way they are already together." (15, 39) Here, he looks at the conditions necessary for invention in composition and explains why teachers tend to inhibit that act. Composition, as seen by Kaufman, is divided into three parts: "experiment, mental digestion, expression." The main reason the fullness of the composition act is not allowed by the teacher is that different forms of freedom are mandatory: the freedom to write what one knows about, to discuss with peers, to play (108), to fail, the freedom from having to make judgments, and from narrow boundaries of space and time. After examining these freedoms in light of how they aid invention in composition and cause inhibition in teachers, Kaufman goes on to give several suggestions on how to be more creative in teaching composition. This article points out some changes the teacher needs to make in order to promote invention: excellent. (9, 14)

KOESTLER, ARTHUR. The Act of Creation. New York: The Macmillan Company, 1964. [14]

Koestler discusses the different elements that block "the Eureka act"--the act of discovery or invention. Only when normal thought pathways are hindered or blocked or abnormal conditions are present can discovery occur. He cites several examples, such as Archimedes and Einstein, in illustrating how abnormal circumstances aided discoveries. This book helps the teacher to view things in different ways and to help the student view subjects in a new way: excellent. (7, 18, 103, 110)

LAUER, SISTER JANICE. "Heuristics and Composition." CCC, 21 (December 1970), 396-404. [15]

Lauer states that the reinstatement of invention in composition is needed, yet the traditional approaches of invention are not sufficient. According to Lauer, teachers must seek information from outside the field of English to obtain pertinent and thorough research on invention. Lauer recommends psychology as a beneficial avenue for such a search since it has a great deal of literature in this area under the label "heuristics." The major portion of this article is devoted to Lauer's bibliography--Psychological Bibliography on Heuristics. This source is excellent for supplying bibliographical material and rationales for the use of invention in composition: excellent. (2, 16, 24)

LAUER, SISTER JANICE. "Response to Ann E. Berthoff. 'The Problem of Problem Solving.' CCC (October 1971), 237-242." CCC, 23 (May 1972), 208-210. [16]

While Berthoff [2] takes a narrow definition of problem solving, Lauer establishes a broader and more substantially based one. "Problem solving as Ann Berthoff conceives of it is aimed at finding the right solution, the correct answer, in a finite number of steps governed by explicit rules. Problem solving as creativity seeks only reasonable answers and is open-ended. Problem solving as creativity uses no sets of rules but heuristic productivity, systematic but flexible searching to effective guessing." (4, 25, 104) After showing the basic differences in the two definitions of the word, Lauer clarifies and neutralizes the basic arguments brought up by Berthoff. This completes the arguments both for and against the use of problem solving in connection with composition: excellent. (15)

MCCRIMMON, JAMES M. "Will the New Rhetoric Produce New Emphases in the Composition Class?" CCC, 20 (May 1969), 124-130. [17]

Surveying the "new rhetorics," McCrimmon elaborates on the contributions the new rhetorics will have for the teaching of composition. One new area in rhetoric is the merging of the arrangement and invention phases into a "universe of discourse" as shown by Young and Becker [26]. This emphasis focusses on the process of choices in the self-subject-situation complex. (72) Another emphasis is that specifically termed "prewriting"--writing which precedes the rough draft. (69, 70) The advocates for this approach

emphasize the expansion of the problem and the provision of "feed-forward" which usually concerns the reader-audience-subject complex. McCrimmon, at this point, stresses how the audience is often neglected, citing Kenneth Burke as one of the few concerned with audience. (73) In the area of analysis of subject matter, the major role of prewriting, Pike [118], English [106], and Howes [109] are cited for their work in tagmemics. This source provides the teacher with an overview of varying approaches, applications, and purposes of invention: excellent.

MCELVAINE, MARCIA L. "The Creative Process: The Relationship of the Musical and Literary Composer." CCC, 19 (May 1968), 128-132. [18]

McElvaine compares musical composers to literary composers, stating that the literary composer can learn a great deal by studying the musical composer. For example, she shows how Paul Hindemith works from an overall concept to the part (125), and how Igor Stravinsky creates by ordering chaos. She then relates her discussion to the composition student. This source presents some interesting ideas that aid in the understanding of the creative act: good. (4, 14)

MEDNICK, SARNOFF. "The Associative Bases of the Creative Process." Psychological Review, 69 (1962), 220-232. [19]

In this article, Mednick publishes an associative interpretation of creative thinking. First he defines creative and associative terms, indicating three ways creative solutions can be achieved: through serendipity, simulation (75), and meditation. (69, 70) Next he distinguishes individual differences which serve as variables in facilitating creative reform, forming a

list of these variables. He also predicts the effect of certain experimentally manipulative variables upon the creative process. This article points out to the teacher what variables to discard or obtain in facilitating invention: good.

NEWELL, ALLEN, J. C. SHAW and HERBERT A. SIMON. "The Process of Creative Thinking." in Howard E. Gruber, Glenn Terrell and Michael Wertheimer, eds. Contemporary Approaches to Creative Thinking: A Symposium Held at the University of Colorado. New York: Atherton Press, 1962. 63-119. [20]

Newell, Shaw and Simon explain problem solving as a creative process on three parallel lines: (1) through an abstract model of problem solving behavior providing operational meanings, (2) through programs for digital computers to simulate human problem solving, and (3) through re-examining literature on problem solving in light of the theoretical model and computer programs. While all the data had not been tested or compiled, the article is thorough in its explanations and is of interest to the composition teacher requiring a thorough background in the psychological process of creative problem solving: good.

PARKER, ROBERT P., JR. "Focus on the Training of Writing: on Process or Product?" EJ, 61 (December 1972), 1328-1333. [21]

Disagreeing with Rohman's definition of prewriting as a silent, cognitive activity (69, 70), Parker more broadly defines prewriting based on his personal experience. To Parker, the invention process can

involve the use of all of the senses, verbal (98) and non verbal activity, as well as private rational activity. (85, 86) "In some cases . . . it has involved drawing, painting, dancing, dramatizing, making sculptures, etc." He further contests Rohman's limitations of discovery to a pre-writing period. Quoting from Aldous Huxley, Henry Miller, and Edward Albee, Parker contends that a great deal of the discovery process can take place during the writing stage. This article provides a good rationale for the initiation of discovery into the composition program as well as an interesting approach to the discovery process itself: excellent.

RICHARDSON, ELIZABETH. The Environment of Learning: Conflict and Understanding in the Secondary School. New York: Weybright and Talley, 1967. [22]

In Richardson's book, Chapter 7--"Freedom, Discipline and Creative Invention"--most specifically focusses on invention in the classroom. While this section deals with invention in other areas than English, the composition teacher can make numerous applications. Richardson discusses four basic areas of invention: the role of discovery in learning, freedom of the imagination through the arts, the demands of the creative task, and the teacher as promoter. This source not only provides the teacher with other references in specific areas of invention, but it also gives him a practical overview of the area of discovery in education: excellent. (4, 7, 14)

SKOPEC, ERIC W. "Contemporary Inventional Theory: An Aristotelian Model." ERIC. Paper delivered before the annual meeting of the Speech Communication Association. December, 1972. [23]

Skopec examines the classical precepts of rhetorical invention along modern emphases. He focusses on four main areas: the Aristotelian conditions for inventional application, the conditions relevant to contemporary public speaking, the elements of Aristotle's inventional system, and an outline of an Aristotelian-based inventional system, colored by contemporary emphases. (3, 25) He concludes that the Aristotelian system may be the only basis of inquiry. For the teacher with little background in classical rhetoric: good.

YOUNG, RICHARD. "Notions of 'Generation' in Rhetorical Studies." in Studies in Language and Language Behavior: Progress Report No. 6. Ann Arbor: Michigan University Center for Research of Language and Language Behavior, 1968. [24]

Young defines the heuristic procedure (15) as one that "provides a series of questions or operations which encourages the intuition of a provisional solution to a problem. It helps to guess effectively." Illustrating this, he points out the heuristic used by newspapermen: who? what? when? where? how? why? While a heuristic approach to invention will not necessarily make the paper any better, it will make the data gathering process more efficient, increasing the possibility that the article will be more developed and more original. He finds the heuristic procedure as being

between the rule governed approach and the trial and error approach. Young provides an overall description of what heuristics are and how they can be involved in invention: good. (27, 47)

YOUNG, RICHARD E. "Problems and Process of Writing." ERIC. Paper delivered before the National Council of Teachers of English, Milwaukee, Wisconsin, November 29, 1968. [25]

Young finds modern approaches to invention lacking since they do not go far enough to explain why one must go through prewriting. (69, 70) In filling this lack, Young discusses Dewey's concept and recognition of problems. (8) Next Young discusses how the heuristic approach can help delineate and qualify problems. (15, 24) Certain benefits exist for those applying this approach: it can help the teacher produce a classroom atmosphere which is close to actual-writing situations (30), and it can also make it easier to teach later stages of writing. For the teacher who wants to know why he should invest any time or effort in using heuristics in invention: excellent.

_____ and ALTON L. BECKER, "Toward a Modern Theory of Rhetoric: A Tagmemic Contribution," Harvard Educational Review, 35 (Fall 1965), 450-468. [26]

Young and Becker show the benefits of a tagmemic approach to rhetoric. While they touch on style and arrangement, the main focus is on invention. Here they point out two types of invention techniques: taxonomic heuristics, which classifies the sorts of solutions found in the past and epistemological

heuristics, inquiry based on assumptions "about how we know something," which is further divided into etic-emic views and trimodal approaches. This article incorporates the works of English [106] and Pike [118], showing their value to a composition situation. This article can be understood and incorporated by anyone with little linguistic background and supplies an excellent picture of invention from a new angle: excellent. (3, 120)

Practice

DE BONO, EDWARD. The Dog Exercising Machine. London: Jonathan Cape Ltd., 1970. [27]

While similar to [103], this book focusses mainly on children's drawings in response to given problems. However, from the drawings De Bono finds three basic methods of generating new ideas from old ones: "the exchange principle, the put together principle, and the fill-in principle." The brief, thorough section at the end of the book summarizes the points drawn from the drawings and provides excellent insight into the generation of ideas: specific. (14, 104, 105)

HARRINGTON, DAVID V. "Teaching Students the Art of Discovery." CCC, 19 (February 1968), 7-14. [28]

After reviewing the present attitudes toward invention, Harrington gives the teacher several suggestions in aiding students in discovery. Teachers need (1) to recognize that many basic principles of all types of writing are similar, (2) to postpone some details of the final product and allow students more thinking time, (3) to encourage students to write

spaced generalizations filling in the spaces later with supporting material, (4) to encourage students to carry writing materials at all times for notetaking (29, 69, 70), and (5) to write for the students. (35) He also voices the need for more self-analysis on the part of the teacher concerning his own creating process in order for progress to be made in the teaching of composition. For the teacher seeking a formula for more effective teaching of invention: good.

HAYAKAWA, S. I. "Learning To Think and to Write: Semantics in Freshman English." CCC, 13 (February 1962), 5-8. [29]

Hayakawa describes a three part procedure to freshman composition. He sees the need for a section devoted to semantics in order to produce a greater awareness of language (85, 110), for varied reading in order to promote creative thinking (7, 14), and for "a vast amount" of writing in order to promote growth. (76) He suggests having the students write uninterruptedly for 15-30 minutes, later drawing from that material for essays. According to Hayakawa, these writing exercises allow the student to approach more formal writing with fewer inhibitions (13) and with more confidence, thereby initiating more creativity. For the teacher seeking some practical suggestions on promoting greater awareness in order to produce more effective discovery: good.

MASSIALAS, BYRON G. and JACK ZEVIN. "Teaching Social Studies through Discovery." Social Education, 28 (November 1964), 384-387. [30]

Emphasizing Jerome Bruner's principles in "The Act of Discovery," [4], Massialas and Zevin conducted a study on teaching social studies through discovery.

New discovery episodes were given every two weeks with small amounts of supplementary material supplied during that span of time. The results showed that students of average intelligence were able to directly participate in the discovery process; the use of historical documents in connection with discovery episodes prompted the employing of historical and social science concepts and research and analysis techniques. The presentation of the material plus the nondirective behavior of the teacher (34) produced a new psychological climate, while the method of discovery highly motivated the students. Several pages of the article are devoted to actual discovery episodes. This article presents a way to create episodes or teaching modules that can be applied by the creative composition teacher: good.

MCCRIMMON, JAMES M. Writing with a Purpose, 5th ed. Boston: Houghton Mifflin Company, 1974. [31]

Although McCrimmon's text is a general composition text, there is a significant section on prewriting in the first four chapters. (69, 70) This section covers the discovery of persona (74, 79), discovery of subject matter (41), and discovery of organization for the material. (30) All four chapters include exercises, examples, and questions which aid in the teaching of each point. An excellent source of practical classroom material for the teacher of composition: specific.

PETERSON, R. STANLEY. "Once More to the Well: Another Look at Creative Writing." EJ, 50 (December 1961), 612-619. [32]

Defending the usefulness of creative writing, Peterson explains that creative writing demands planning, form, and emphasis. He discusses how to begin

teaching creative writing and suggests several ways of making students become more observant and aware. After giving several outstanding assignments, Peterson says these assignments should be followed with verbalization (95, 98) on the productivity of such exercises. These assignments deal with discovery through role-playing (74, 92, 93), observation (85, 86), and lateral thinking (104), to name a few. For the teacher looking for varied and effective classroom assignments on invention: good.

Research

BURACK, BENJAMIN. "The Nature and Efficacy of Methods of Attack on Reasoning Problems." Psychological Monographs, 64, No. 313 (1950). [33]

Burack selected nine methods of approaching problems for investigation. The participants in the experiment were given three different problems and approached them in various methods. The conclusions Burack drew from the experiment were that (1) the usefulness of a particular method of attack varies with different problems and is dependent upon the kind of task involved, (2) on a particular problem certain presumably different approaches may be actually the same, (3) on certain problems the methods are meaningless and have no value, and (4) the potential efficacy of a method depends on the problem being approached. (3) This report informs the teacher of the necessity for varied approaches in discovery and problem solving: good. (7, 14)

CORMON, BERNARD. "The Effects of Varying Amounts and Kinds of Information as Guidance in Problem Solving." Psychological Monographs. 71, No. 431 (1957). [34]

The issue that Cormon concerns himself with is whether to make available greater or lesser amounts of information, information concerning either principle or method. After testing twelfth graders (35) given combinations of information on principle and method, Cormon found that the information must be appropriate to the task (3), that failure to provide information only delays but does not cause failure in finding the solutions, that the effectiveness of guidance does not depend upon the amount of information given, and that more explicit instructions help the more capable student but do not effect the less capable. This study could be helpful to the teacher in his preparation for teaching discovery in the classroom: applicable. (30)

EMIG, JANET. The Composing Processes of Twelfth Graders. NCTE Research Report No. 13. Urbana, Illinois: NCTE, 1971. [35]

Emig's study focusses on the composing processes of students. The "Theory of the Creative Process" section is a superior collection of theoretical material on the background in this area. (14) In her section "Implications for Teaching," Emig makes suggestions for teachers, including a suggestion that teachers should experience writing as a process to teach it. (28) The study should be read by all teachers to understand discovery as a part of the process of writing: good. (9, 34)

FLANAGAN, MARIE L. and HOWARD F. GALLUP. "Creativity Training." Psychology Reports, 21 (1967), 934. [36]

Flanagan and Gallup theorize that creative thinking involves a problem solving process where responses are sorted out, examined, and rejected until a solution is discovered. "Such a technique of sorting through response hierarchies constitutes behavior which is learned and, therefore, can be trained." (7, 105) To support their belief that inventive or creative thinking can be taught, Flanagan and Gallup experimented with two groups given the Test of Original and Creative Thinking. While the first group took the test, the second group was involved in a series of exercises practicing cognitive hierarchies. The results showed that the second group which was put through the exercises before taking the test scored higher than the first. This research study holds positive implications for the teacher employing a system, such as topics or problem solving, as a means of promoting invention: good. (96)

KETTNER, NORMAN W., J. P. GUILFORD and PAUL R. CHRISTENSEN. "A Factor Analytic Study Across Domains of Reasoning, Creativity, and Evaluation." Psychological Monographs, 73, No. 479 (1959). [37]

The main purpose of this study was to investigate some analysis factors previously found in reason, creativity, and evaluation. The authors found nine of the ten factors in the same form as previously found. Their study dealt with such factors as perceptual classification, education of structual relations, and varying abstractions. "A consideration of natural groupings of factors suggests that the

heuristic categories of reasoning and creative thinking would more appropriately be replaced by categories of discovery or cognition and of productive thinking." This reinforces the fact that what had been looked at as reasoning and creative thinking is more appropriately labled discovery. For the teacher needing a better understanding of the discovery process: good. (7, 11, 15)

PERRIN, CARL RICHARD. "Discovery, Structure and Voice: An Approach to Teaching Composition," Dissertation Ohio State University 1973. [38]

Perrin's project, a composition approach emphasizing discovery, structure, and voice (73, 74), was used by two college freshman English classes. The project utilized exercises leading to discovery of subject matter (41, 51), discovery of structure, and discovery of the appropriate writing voice. The first two assignments work with new ideas and creative thinking. The next two assignments help students discover an appropriate organization. The last assignment helps the student discover an appropriate voice. The results showed the students capable of writing creative original essays; however unusual creativity did not result. For a teacher seeking some tested assignments in this area: excellent.

WELLS, HERBERT and DANIEL WATSON. "Strategy Training and Practice in Disjunctive Concept Attainment." Psychological Reports, 17 (1965), 925-926. [39]

Wells and Watson selected several participants to test the results of training and testing on attaining a series of three disconnected concepts. Training the participants in the proper stategy to use when dealing

with disconnected concepts proved better than simply supplying the participants with instructions about the concept. Also, the ability to transfer concepts between the problems generally was found in the concept attainment. This study is significant in that it shows the necessity of training an individual to piece together disconnected concepts (105, 110), therefore implying the need for training composition students in invention: good. (6, 50)

CHAPTER III

TAXONOMIC HEURISTICS

The basic difference between taxonomic heuristics and epistemological heuristics is the purpose or intention of the writer as he approaches the composing situation. If the writer comes with a predetermined goal in the area of scientific, informative, or persuasive writing, several variations of the taxonomic system exist which should supply him with ways of achieving his goal, or developing his proposition.

One of the oldest methods is classical topoi or topics. Recently topics have been rejected as too mechanical and, therefore, of little value. E. M. Jennings [110] points out the reasons for the ineffective use of topics. The original rhetorician already knew what he wanted to accomplish and used topics to reach a predetermined goal. In contrast, the student today usually comes to the composing situation with no predetermined goal. For the teacher to force the use of topics in the latter situation would prove ineffective.

However, the taxonomic approach is valuable when used correctly, and the material I included in this section brings out its value. Edward Corbett [41] says that the topics are useful "for probing a subject to discover possible ways of developing it" (p. 107); the "otherwise paralyzed student" is freed to investigate possible lines of development. M. Belsky, M. Hazlett, R. E. Streeter, and R. M. Weaver [45] view the taxonomic approach as enabling the student to find access to intelligent and appropriate material. The topics can be intimately related to the student's problems, "allowing the student to discover relevant and effective arguments" (p. 215).

The literature I have included in this section points to at least three approaches to taxonomic heuristics through modification of topics and systems of analysis. Corbett [41], for example, illustrates the approach to taxonomic heuristics through a collection of topics. On the other hand, Larson [52] and Winterowd [56] advocate analyzing prose to discover the pattern used by the author, which might be adopted

later by the student. In yet another variation, Larson [54] sees linear analysis or "plan" as one of the best developed theoretical topics.

Theory

BAILEY, DUDLEY. "A Plea for a Modern Set of Topoi." CE, 26 (November 1964), 111-117. [40]

Bailey quotes Coleridge in saying that the essence of method "is to contemplate not things only, or for their own sake alone, but likewise and chiefly the relationship of things, either their relations to each other or to the observer, or to the state and apprehension of the hearers. To enumerate and analyze these relations with the conditions under which alone they are discoverable is to teach the science of method." (4) Connecting this with rhetorical invention, Bailey sees the need for finding patterns that can be applied to writing and cites several existing patterns. He also sees the need to concentrate on the different kinds of logic (68) and the different relationships concerning the writer and reader. This is a fairly general article showing the need for an awareness of relationships: fair. (43, 50, 51)

CORBETT, EDWARD P. J. Classical Rhetoric for the Modern Student, 2nd ed. New York: Oxford Press, 1971. [41]

Corbett's book is a thorough, understandable, and practical book on classical rhetoric, with approximately one-half of its material devoted to rhetorical invention. The chapter on "Discovery of Arguments"

discusses the foundation of a thesis, the distinctions and uses of the basic appeals, and the common and special topics. After discussing external aids to invention, Corbett completes the section on discovery of arguments with several essays and readings which illustrate the use of topics. The exercises are quite complex and demanding, but may be modified for differing levels of composition. As a source on classical invention: excellent. (45, 52)

GAGNE, ROBERT M. "The Learning Requirements for Inquiry." Journal of Research in Science Teaching. 1 (1963), 114-153. [42]

Gagne deals with the problem of inquiry in the scientific fields. He says that the teacher supplies the student with principles but omits "this essential part of his education . . . as an informed citizen by not establishing within him the disposition which makes him employ inquiry." Gagne proposes that in order to be able to use inquiry, a student must first learn to observe, classify, and infer. (58) Next he must obtain a thorough knowledge of the subject matter. Then he must become autonomous, trust himself, look at problems objectively, create new ideas, and judge the ideas critically. (26) Gagne, therefore, proposes that discovery or inquiry can result only when prerequisite competencies have been learned. The teacher of composition should enforce the application of these competencies: good. (49, 51, 62)

WINTEROWD, W. ROSS. "'Topics' and Invention in the Composing Process." CE, 34 (February 1973), 701-709. [43]

Winterowd's brief article is a clear and thorough attempt to revitalize the concept of topics in theory

and practice. He states that all topics fall into one of four categories: form-oriented nonfinite topics, content-oriented nonfinite topics, content-oriented finite topics, and form-oriented finite topics. In illustrating these categories of topics, Winterowd considers theories and suggestions found in articles by Kenneth Burke; Young and Becker [26]; Young, Becker, and Pike [120]; and Francis Christensen. Winterowd sums up his explanation of the role of topics in the composition process by stating that "what I mean is this: if one views theories of form and theories of style merely as sets of topics--which in most instances they are--then the whole process of composition is unified under the auspices of invention, generally concerned to be the least mechanical and most creative of the departments of rhetoric. . . . Topics should not shackle the mind. They should liberate." For the teacher seeking liberating topics: excellent. (100, 118)

Practice

ASHMEAD, JOHN. "Good Writing from Great Books." CCC, 15 (February 1964), 29-33. [44]

Ashmead suggests reading classics in order to stimulate writing. After years of successful classroom application of this technique, Ashmead states that when writing on a classic a student tends to "tighten up and revise his assumptions about life, logic, and literature. . . ." He lists both possible classics with suitable topics and a characteristic reading list for his two semester course. Ashmead's approach is useful to the teacher who wants to use literature as a taxonomic means of invention: good. (97, 109)

BELSKY, MANUEL, MCCREA HAZLETT, ROBERT E. STREETER and RICHARD M. WEAVER. "Looking for an Argument." CE, 14 (January 1953), 210-216. [45]

Belsky, Hazlett, Streeter and Weaver take the position that classical topoi or topics are not only useful in gaining substantive arguments in composition but are also necessary in saying something intelligent about the "real world." (85, 86) The authors then go on to define and illustrate the use of topics. In actual utilization of topics in a college composition course, the authors found that limiting topics to genus (58), consequence, likeness and difference, and testimony and authority was most beneficial. The authors discovered that the students had strong views about controversial topics and were less likely to "freeze or foam" when writing the argument. They also suggest practical classroom applications: specific. (53)

BLUME, STEVEN. "A Suggested Remedy for Linear Confusion in Composition." CCC, 17 (October 1966), 139-142. [46]

Blume discusses the student's failure to generalize observations and support these with observations and experiences. He maintains that literature is a double aid in solving this problem by helping the student become more objective, as well as showing him how a concept or generalization may be supported by precepts or substantive material. Blume illustrates his theory with Conrad's Heart of Darkness and forces students to draw upon the literature as well as their own experience. An interesting taxonomic approach using literature: good. (44, 54)

BOUISE, OSCAR A. "Generating a Composition." EJ, 56 (October 1967), 1011-1014. [47]

Bouise's approach, of discovery through classifications, is composed of three steps: a generator of ideas, point ideas, and topic ideas leading to theme statements. Classroom examples of this technique illustrate how discovery advances from the sentence, to the paragraph, and to the theme. However, he also involves awareness of audience (73), tone (79), and the voice of the writer (74), through role playing in his classroom examples. While basically good, this exercise may need to be adapted to the teaching situation: good. (24)

GRADY, MICHAEL. "A Conceptual Rhetoric of the Composition." CCC, (December 1971), 348-354. [48]

Conceptual rhetoric makes the assumption that the writer knows what he wants to write about, how it should be arranged, and how it should be carried out. Grady gives practical methods to approach the prewriting step (69, 70), which he terms the deductive or conceptualizing step (85, 86), and touches on the development of the paper, which he calls the inductive or generating step. This article gives the teacher an overview of the place of classical invention in the composing process: good.

JENKINSON, EDWARD S. and DONALD A. SEYBOLD. Writing as a Process of Discovery: Some Structured Theme Assignments for Grades Five through Twelve. Bloomington: Indiana University Press, 1970. [49]

Jenkinson and Seybold do not propose that their text is a complete writing program, nor do they state

that the theme assignments are particularly imaginative or provoking. However, through a series of steps, they propose to teach a student how to ask questions that lead to the discovery of information and appropriate wording of a theme. According to Jenkinson and Seybold, research has discovered four areas that hinder writing and the discovery process: failure to explain to students the writing process, failure to supply the students with a specific audience, failure to supply a purpose for writing, and failure to specify grading criteria. The eighteen themes given by Jenkinson and Seybold have been experimented with and tested in public schools and have been structured to avoid these problem areas. These authors supply the teacher with a well thought out series of assignments that, while aimed at specific grade levels, may be easily adapted by the composition teacher: specific. (51, 58, 100, 111)

KAPLAN, MILTON A. "Before They Write." CCC, 17 (October 1966), 157-160. [50]

Kaplan says that teachers often send students away with an assignment, assuming the students will be able to discover a pattern "that will dictate strategy, organization, emphasis, tone, and even style." In order to help teach the student how to discover patterns and continuity in material, Kaplan has devised and presents several exercises. The exercises begin with basic information that must be organized into paragraphs and end with seemingly unrelated material that must be organized into a theme. This article provides a source of exercises that aid in discovery through classification: specific. (107, 110, 114)

LARSON, RICHARD L. "Discovery Through Questioning: A Plan for Teaching Rhetorical Invention." CE, 30 (November 1968), 126-134. [51]

Topics are often considered inert and ungenerative. However Larson formulates topics into questions initiating responses from students. Through questioning, Larson proposes that the student will be forced to become familiar with facts and relationships among the facts. Larson admits that not all questions prove to be useful for all subjects; however, this forces the student to become aware of the differing potentials of the questions. The second portion of Larson's essay outlines several suggested questions, divided into two categories: topics that invite comments and topics already attached to comments. These are further divided into writing about single items, an ongoing process, several items, a completed process, propositions, and questions. This source supplies applicable topics for classroom use: specific. (40, 41, 45, 100)

_____. "Invention Once More: A Role for Rhetorical Analysis." CE, 32 (February 1971), 665-672. [52]

In addition to the presently popular means of discovery presented by English [106] and Jennings [110], Larson suggests that a useful means of discovery can be seen in the different ways ideas can be connected. According to Larson, the discovery of the roles played by sentences and paragraphs in different works allow the student to become familiar with approaches to material by various authors. "I am suggesting that in some essays the sequence controlling the steps by which the piece unfolds may become, in the hands of a reader or student, a 'plan' for the expanding of a body of data, or as ideas into an essay--that

is a heuristic for rhetorical invention." He then gives essays written by William Golding, Norman Podhoretz, and George Orwell as classroom examples. (44) Here Larson supplies practical approaches for the teacher who wants to use invention in connection with literature: specific. (46)

LARSON, RICHARD L. "Teaching Rhetoric in the High School: Some Proposals." EJ, 50 (November 1966), 1058-1065. [53]

Larson suggests what the structure and emphases of high school courses in composition should be. By focussing on how a writer can most effectively transmit a group of ideas to particular audiences, Larson emphasizes the use of audience (38, 73) and topics (41, 43) in invention. In making the audience a more effective discovery technique, he suggests supplying a real audience (88), having the students ask suggested questions about the audience, and read and analyze writings to discover the speaker's role and pattern developed for the audience. In using topics, he strongly recommends comparison. This is a good source for general taxonomic-oriented suggestions for classroom use: good. (45, 100)

_____. "Toward a Linear Rhetoric of the Essay." CCC, 22 (May 1971), 140-146. [54]

Larson advocates the use of a "hierarchial" model of discourse, a discovery method helping the reader to expand or evaluate a particular idea. Larson's model utilizes linear or "directional" analysis, aiding the student in finding purpose and continuity for his own paper. In contrast to outlining which separates ideas and paragraphs, the linear plan identifies directions, goals, and the close connections between planning and invention. Larson gives an example of his suggested

technique using E. M. Forester's "What I Believe." Here is a very practical method that easily incorporates literature in the invention-composition process: good. (36, 44, 46, 97)

MARTIN, HAROLD C. "Writing and Thinking." in Edward J. Gordon and Edward S. Noyes, eds. Essays on the Teaching of English: Reports on the Yale Conference on the Teaching of English. New York: Appleton Century-Crofts, Inc., 1960. 161-174. [55]

Referring to topics by the label "inquiry," Martin advocates inquiry as the first step of writing. Martin then illustrates the different levels of inquiry with classroom examples. The fundamental levels are designed to involve the students and to suggest to the students a possible method of inquiry. Martin then gives a thorough example of how inquiry can lead to a definition essay. Although the suggested questions are out of date to a certain extent, the suggestions should be easily modified by an imaginative teacher: applicable. (41, 42, 62, 63)

MORRIS, SARAH MILLER. "Prewriting." CCC, 19 (February 1968), 24-26. [56]

Morris contends that prewriting determines the effectiveness of the paper and allows the student to discover old ideas, new relationships and necessary information. In one case, after a class had become familiar with the prewriting process, Morris directed the students to write themes on the process itself. An excellent student theme is supplied in the article

which illustrates the prewriting process with marginal notes for the teacher. This would serve as a good prewriting exercise for the classroom: good. (69, 70)

PIKE, KENNETH. "A Linguistic Contribution to Composition." CCC, 15 (May 1964), 82-88. [57]

Pike believes that his language theory is relevant to composition, giving eight axioms about language along with exercises to illustrate these points. The eight axioms involve contrast, patterns, comparison, newly formed relationships, and symbolism. While the report is slightly technical, it can be applied by a teacher with little or no linguistic background: specific. (82, 106, 120)

WARD, BARBARA TAYLOR. "A Primary Rhetoric of Discovery: The Use of Classification as a Method for Conceiving Composition Theses." Thesis Texas A&M University 1970. [58]

Ward focusses on classification as a means of aiding students in inventing thesis statements. She suggests twelve "Idea Questions" which serve to force students to discover relationships through classification. For the teacher unfamiliar with the "Discovery Method," Chapter IV explains this method so that the teacher can explain it to students. The "Introductory and Practice Sections of a Discovery Methods Unit" illustrates how the material was presented to her students. Again, a source of very practical and applicable classroom exercises as well as background information: specific. (42, 61, 62, 63)

WILSON, GRACE E. Composition Situations. Champaign, Illinois: NCTE, 1966. [59]

The fourth section of this book concentrates on the individual's thinking process and has assignments to help the student to conceive, explain, clarify and express ideas and to distinguish between ideas. While Wilson does not acknowledge them as such, her fifty situations in this section are forms of Aristotelian topoi and provide the teacher with narrowly focussed variations: applicable. (41, 51, 100)

WINTEROWD, W. ROSS. "The Grammar of Coherence." CE, 31 (May 1970), 828-835. [60]

Here Winterowd shows how points brought from the limited transformational generative grammar compose a grammar of coherence and supply "topics" that can be applied with far reaching implications to composition. Winterowd focusses on topics dealing with seven relationships: coordinate, observative, causative, conclusive, alternative, inclusive, and sequential. He gives a thorough explanation of these "topics" and how they may be used in the classroom. This article supplies the teacher with an interesting variation of topics: good. (43, 47, 97)

Research

CORCORAN, D. W. "Serial and Parallel Classification." British Journal of Psychology, 58 (1967), 197-203. [61]

Corcoran's study deals with the two ways in which complex stimuli may be dealt with, recognizing each in

turn (serial classification) or simultaneously (parallel classification). The two reports used attempt to determine which method is adopted with novel stimuli and whether a change in strategy occurs with practice. He concludes that an initial mode of serial classification eventually gives way to parallel classification after extended practice. The advantages of parallel classification are also discussed. This source shows the teacher that although he may start with a lateral thinking approach, for example, practice in similar problems may give way to uncreative preconceived classifications: good. (41, 43, 58, 60)

SUCHMAN, J. RICHARD. "The Illinois Studies in Inquiry Training." Journal of Research in Science Teaching, 2 (September 1964), 230-232. [62]

Suchman's study basically deals with elementary levels but the principles can be applied to almost any level. He found three conditions essential for his program in inquiry training: a focus for student attention, external and internal freedoms (108), and a "responsive environment." (21, 115) The results showed, among other things, what type of student was a better inquirer. Three factors that contribute to the student's ability to discover are the ability to handle data, the existence of an impulsivity factor, and autonomy. For the teacher who wants to thoroughly adapt his procedures to the student: good. (42, 55)

TORRANCE, E. PAUL and ETHEL HANSEN. "The Question Asking Behaviors of Highly Creative and Less Creative Basic Business Teachers." Psychological Reports, 17 (1965), 815-818. [63]

In this study, Torrance and Hansen took two groups

of basic business teachers, six scoring high on a battery of creative thinking tests, and six scoring significantly lower. Torrance and Hansen recorded the questions asked by both groups and scored these questions by the Burkhart-Bernheim measure of Divergent Power, classifying them as Divergent Provacative or Factual-Reproductive. The questions asked by the highly creative teachers were higher in the Divergent Power criteria than those from the less creative teachers. While this study is limited in several ways, the implication can be drawn by the composition teacher as to the connection between creativity and the ability to think of and use divergent questions: good. (42, 52, 55)

CHAPTER IV

DISCOVERY THROUGH PERSONA

According to Young and Becker [26], "we have increasingly regarded facts and experimental evidence as the basis for sound arguments, rather than relying on the wisdom of the past; we have become much more interested in techniques for discovering what is unknown than in techniques for bringing old beliefs to bear on new problems" (pp. 452-453). Due to the growth of this new emphasis, Young and Becker see classical rhetoric and its reliance on topics as inadequate for our time, since it leaves no room for the addition of the two types of epistemological heuristics. While original rhetoricians gave consideration to the writer-audience relationship, they did not fully use it in invention. The Young and Becker internal-external persona model allows fullness in this area, since it not only involves writer-audience relationships but also self-discovery, the discovery of a writer's possibilities as a creative persona. According to Young and Becker the

external-internal persona approach is a process (pp. 457-458). The external involves the overt means of communication; the internal, however, involves the writer's awareness of what he thinks and how this may differ from what his audience thinks. This discovery of internal views greatly influences the approach he takes to discover appropriate external aids in communicating to his reader.

Several people advocate this approach to invention. James Moffett [43] dogmatically states that teachers need to present their students with a mandate to discover a subject, "and to discover their own voice" (p. 248); he also emphasizes the importance of this approach in contrast to other approaches. W. E. Coles [77] says that we as teachers need to "purpose ideas in such a way as to allow a student to have ideas of his own, to find himself in the act of expression, [and] to become conscious of himself as becoming. . ." (p. 111). In addition, Leo Hamalian [65] suggests that focus on the persona will bring "out the spirit of life in the person and cut out the chaff in his

prose" (p. 227). Since one of the main reasons for utilizing invention in composition is to produce better writing, Hamalian's statement suggests the value of invention through persona.

Since invention through persona presents the two-fold problem of internal and external discovery, the literature I have included in this section represents both areas. For example, Thomas Buell [76] and C. J. Trotman [90] recommend the use of journals as a means of self-discovery. D. G. Rohman and A. O. Wlecke [70] suggest, in addition, the principle of religious meditation in order to internalize an experience. On the other hand, M. Paull and J. Kligerman [26] approach the internal persona through experiments with sensation, perception, and concept formation.

I have also included varied approaches to the external persona in the persona-audience relationship. S. Bovey [74] and N. Atkinson [73], for example, give some very thorough systems to this approach. Bovey presents a series of assignments utilizing

role-playing as a means of adopting appropriate personas, while Atkinson presents a series of classroom assignments which lead the students through situations to a more sophisticated writing persona. Some approaches, such as Thelma Altshuler's [72], force student identification with both persona and audience. Others simply suggest procedures, such as writing for a live audience [88].

Whatever the classroom situation is, there are enough articles representative of varying approaches to aid the composition teacher in applying this approach to the classroom.

Theory

CARTER, STEVEN. "Freshman English and the Art of Empathy." CCC, 20 (February 1969), 39-42. [64]

Carter stresses that all of the student's prewriting time cannot be devoted to sequential instruction on rhetoric or in analysis of prose. Some time must be devoted to thinking. The problem of getting the student to think begins with the student's passiveness. Here, Carter says, the solution begins with empathy, giving the procedure to create this discovery attitude in the classroom: (1) get rid of the concept that the classroom is an artificial environment with

the student having to write in spite of his environment and audience, (2) get rid of cliches, and (3) do not appologize for the freshman composition course. The article as a whole is rather general with some practical suggestions and worthy ideas: good. (74)

HAMALIAN, LEO. "The Visible Voice: An Approach to Writing." EJ, 59 (Fall 1970), 227-230. [65]

Using "voice" to refer to the speaking voice of the author, Hamalian states that the refinement of a student's voice "brings out the spirit of the person and cuts out the chaff of his pro[illegible]" He finds irony in the fact that a student's most [illegible]ilted writing often comes on personal experience assignments and states the need for keeping the student's voice from "freezing up." While the process is not quick or easy, Hamalian suggests that the teacher allow the student to discover himself and his style, giving a few possible guidelines to follow, such as using creative writing exercises. This article is of value to the teacher who wants to aid in invention and rid the stylistic mental blocks that hinder his students from invention: excellent. (73, 79)

LOCKERBIE, A. BRUCE. "The Speaking Voice Approach Joins the Rhetorical Parade." EJ, 56 (March 1967), 411-416. [66]

Lockerbie states that joining the rhetorical parade has been the single most exciting influence upon his teaching, enabling him to direct his students "toward what I am sure is a grater depth of consciousness concerning their functions as writers." (73, 86) Lockerbie gives a very good explanation of how the "speaker" differs from the "author" and how "distance" and "tone" influence the speaker-audience relationship. He then explains the need for this understanding in the

classroom. This article would most benefit the teacher, needing background in the speaking voice approach, who desires to focus on invention through persona: good. (74, 80)

MOFFETT, JAMES. "A Structured Curriculum in English." Harvard Educational Review, 36 (Winter 1966), 17-28. [67]

Moffett, following Jerome Bruner's concept of curriculum structure [5], defines a curriculum which brings into harmony the teaching of English and its goals of "thinking, speaking, listening, reading, and writing." The subdivision entitled "The Structure of Discourse" concentrates on discovery. Here Moffett focusses on the interrelationships between audience, speaker, and subject matter as the actual superstructure for English. (73) To learn these relationships, Moffett suggests that the student employ role-playing. (92, 93) After elaborating on the student's need for greater amounts of information concerning the reality of differing speakers, Moffett deals with the "what and what for" of writing and gives practical advice for supplying students with realistic audiences: good. (74, 89)

NELSON, J. SMITH, III. "Logic for the New Rhetoric." CCC, 20 (December 1969), 305-313. [68]

Nelson defines the "New Rhetoric" as going away from the techniques of the speech to the impact on the audience. (80) He narrows down his focus to the classroom teaching of logic and shows how logic can be more applicable if viewed with this new emphasis and how mastery of logic indispensably aids in producing inventive thought. For the teacher seeking a classical approach to the writer-audience relationship. good. (40, 73, 126)

ROHMAN, D. GORDON. "Pre-Writing: The Stage of Discovery in the Writing Process." CCC, 16 (May 1965), 106-112. [69]

In investigating and experimenting with the composition process, Rohman and a group of colleagues divided writing into three categories: pre-writing, writing, and re-writing. Rohman's group concerned themselves primarily with pre-writing. Rohman defined pre-writing as "that stage of discovery in the writing process when a person assimilates his subject to himself." He states that there are two areas of discovery: "subject context," where points are discovered about the subject, and "personal context," where a unique and original combination of words are discovered. Rohman also suggests three approaches to pre-writing: (1) keeping a journal (29, 76, 90), (2) practicing some principles derived from religious meditation (86, 89), and (3) using analogy. (89, 113) This article and [70] both supply the teacher with an understanding of the pre-writing period and three practical pre-writing exercises: excellent.

_____, and ALBERT O. WLECKE. Pre-Writing: The Construction and Application of Models for Concept Formation in Writing. USOE Cooperative Research Project. Washington, D. C.: 1965. [70]

Rohman and Wlecke, in this research study, tried to isolate the pre-writing process by concentrating on the student's encounter with an experience and on his reactions to the experience. Three major exercises were promoted: keeping a journal, practicing religious meditation principles, and using analogy. (123, 126)

While the basic principles of this study are discussed in [69], this article gives more complete information concerning the procedure followed, the exercises used, and the results obtained from student writing: excellent.

WALSH, J. H. "The Teaching of Writing." in Denys Thompson, ed. Directions in the Teaching of English. Cambridge: Cambridge University Press, 1969. [71]

Although Walsh does not label it as such, in this article he makes a plea for the use of discovery in the writing situation. He states that the crucial problem in teaching writing is to create conditions where students are convinced they have something to say rather than put them in a situation where they are forced to say something. As a means of creating optimum conditions for discovering things to say, he suggests supplying the student with a "real situation and a real audience." While very general, this article does offer the teacher a few applicable ideas: fair. (72, 81, 88)

Practice

ALTSHUBER, THELMA. Choices: Situations to Stimulate Thought and Expression. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1970. [72]

Altshuber's text emphasizes the situation in the self-subject-situation complex. The "situations" are enhanced by narration, cartoons, advertisements, and are followed by probing questions often involving

student identification with a new persona (74, 79) and by further questions called "challenges" for class discussions and theme writing. This basically self-paced, discovery provoking text is highly organized, yet allows the student freedom to personal discovery: excellent. (8, 17, 71)

ATKINSON, NANCY GARRETT. "Rhetorical Point of View: The Manipulation of Audience and 'Speaking Voice' to Improve Student Writing." Thesis Texas A&M University 1970. [73]

Through a series of units, Atkinson leads students to view themes in a situational manner. Unit I concerns a change of audience; Unit II, a change of attitude; Unit III, a change of audience and attitude; Unit IV, an emotional appeal through point of view; Unit V, the defense of an attitude to a hostile audience. Included in her thesis are the preliminary discussions concerning assignments, student examples, and evaluations of assignments, as well as suggested possible deviations from the experimental assignments. As a result of this approach, Atkinson said that the students better understood the speaker-subject-audience complex. She personally recommends an emphasis on all three elements rather than any one. As she states, these units are "usable at most levels in grades nine through thirteen," and there needs to be no prior knowledge of rhetoric to utilize them: specific. (65, 66, 79, 80)

BOVEY, SHIRLEY ELLEN. "The Rhetorical Mask as an Aid to Composition." Thesis Texas A&M University 1972. [74]

Bovey's thesis views role-playing as helping students in the prewriting stage and presents six assignments in role-playing. All of the assignments force the students to drop a "third person boring" voice and adopt another one (79) and to adopt increasingly more sophisticated stances. Sample themes and evaluations are given to suggest possible guidelines for grading such assignments. The explanations and assignments are especially beneficial to the teacher not familiar with role-playing techniques: specific. (64, 65, 66, 92)

BREWBAKER, JAMES W. "Simulation Games and the English Teacher." EJ, 61 (January 1972), 104-109. [75]

Brewbaker takes the position that the presently popular social studies teaching technique of simulation can be applied to the teaching of literature, language skills, and composition. By making specific references to several commercial games, Brewbaker establishes that the simulation environment emphasizes goals already enstated in most composition courses. For example, Dangerous Parallel, a game developed at John Hopkins University, allows the participant to experiment with differing styles in connection with differing audiences and situations. A further example, The Public Opinion Game by W. Phillip Davison, stresses the logical progression and adequate support of ideas. Brewbaker further supports his position with examples of actual classroom successes with simulation games. This article supplies the teacher with a rationale for, as well as the very practical application of,

simulation games with an added list of possible source materials: specific. (8, 84, 115)

BUELL, THOMAS C. "Notes on Keeping a Journal." CCC, 20 (February 1969), 43-46. [76]

Buell suggests a way to grade all the papers students need to write, in order to carry out invention, by focussing on the values of the journal. He gives several practical ways to approach and grade the journal, listing possible writing suggestions to result from preliminary work done in the journal. The article is of value to the teacher needing specific, practical suggestions on applying the journal as a means of discovery: specific. (69, 70, 89, 90)

COLES, W. E., JR. "The Teaching of Writing as Writing." CE, 29 (November 1967), 111-116. [77]

Cole's objective is to "pursue ideas in such a way as to allow a student to have ideas of his own, to find himself in the act of expression, to become conscious of himself as becoming through the use of language." In his approach Cole discards texts and focusses on thirty-five assignments instead. His assignments pursue ideas, are open-ended, and ask questions without answers. Hoping his assignments will bring to light the persona and lead to discovery, Coles gives the sequence of his assignments with several very specific examples. (79) For the teacher who is seeking a way of devising a one semester curriculum around persona: specific. (73, 74)

ENGELSMAN, ALAN D. "A Piece of the Action." EJ, 61 (February 1972), 252-256. [78]

Engelsman focusses on the student and his writing persona, basing the article on personal classroom successes. He states that the student does not need to be handed a list of personas to choose from as inventive sources. Instead, Engelsman believes the invention process should begin with the student's participation in the creation of personas. Practical classroom procedures and exercises are included by Engelsman which stress the invention process. However, these exercises go beyond the invention of appropriate "voices" and styles to the invention of the appropriate arrangement of material. The exercises, well constructed and thoroughly explained, are applicable to any level of composition teaching: specific. (73, 79)

GIBSON, WALKER. Persona: A Style Study for Reader and Writers. New York. Random House, 1969. [79]

Gibson discusses two basic categories of personas: those that readers distinguish and those that writers create. The most useful section toward invention in the book is the one on various writer voices or personas. Here Gibson explains the aesthetic distance between writer and reader, the attitudes the writer can assume toward his subject, and the importance of role playing. These areas are all supplemented with student and professional examples and reinforced by exercises and writing suggestions. The last subdivision under this section, "Language and Role Playing" (92), has several suggestions particularly applicable to the composition classroom. For the teacher who wants one basic source with background material and classroom applications: specific. (65, 67, 73, 74)

KITZHABER, ALBERT R. Opinion in Writing and Speaking: The Audience Rhetoric Curriculum, V. Cooperative Research Program of the Office of Education. U. S. Department of Health, Education and Welfare. 1968. [80]

Kitzhaber has organized two units which deal with composition at the eleventh grade level. The first unit helps students discover and focus material. The second unit confronts the student with realistic situations (8) and guides him through the variety of choices and decisions to be made when considering an audience. The student version has exercises, discussion questions, and suggested writing assignments, while the teacher's version has additional rationales and guidance for effective teaching materials. While aimed at the eleventh grade, this material may be easily modified for any level: specific. (66, 73, 74, 99)

LAMBERT, ROBERT S. "Assignment in the Rhetoric of Involvement." CCC, 14 (October 1963), 165-167. [81]

Lambert proposes that personal involvement (64) produces better papers and suggests that students write letters to the editor concerning recent articles the students feel strongly about. In order to aid the students in fulfilling the assignment, Lambert suggests specific guidelines, such as defining the audience through a review of recent issues. An approach easily applied to any level: good. (88)

MCCRIMMON, JAMES M. "Writing as a Way of Knowing." The Promise of English. Champaign, Illinois: NCTE, 1970. 115-130. [82]

Taking the stand that the act of writing is a discovery process, McCrimmon gives several student and professional examples which illustrate that often the problem in composition is not writing what one knows but knowing what to write. McCrimmon classifies writing into two categories: writing as a way of telling, emphasizing style, and writing as a way of knowing, emphasizing invention; he believes style should be viewed in relation to the discovery process of writing for an audience. He also gives instructions for approaching junior or senior levels, reminding the teachers that his prewriting instructions do not need to be followed by an essay, that collective class exercises may be used to stress observation, and that the teacher may want to use Kenneth Pike's technique [118]. For the teacher in search of a different audience-based approach: good. (73, 89)

MOFFETT, JAMES. "I, You and It." CCC, 16 (December 1965), 243-248. [83]

Moffett feels that teachers need to give students a mandate "to find subjects and shape them, to invent ways to act upon others, and to discover their own voice." (65, 73) In order to achieve this goal, he feels that the four stages of discourse--inner veralization, outer verbalization, correspondence, and formal writing--must be understood according to the distance between audience and speaker. While he makes several suggestions concerning the formation of a curriculum to aid discovery through persona, he also stresses practical classroom applications such as providing an audience other than the English teacher for the student. This article not only provides the teacher with

definitions of the various parts of the writer-audience relationship but also practical exercises: good.

MUELLER, LAVONNE. "Happening: Motivation for Writing." Classroom Practice in Teaching English, 1969-1970--Focus: Minorities Communicating, the Dream's Responsibility. Champaign, Illinois: NCTE, 1970. 44-47. [84]

Mueller proposes that students can converse continually about "happenings;" therefore, the use of a "happening" in conjunction with a writing situation allows students more freedom in writing. The simulation of these happenings provide a greater chance of motivating invention. She includes a list of reasons why the happening appeals to adolescents and lists possible happenings and pertinent reading material. Although the article is fairly general, Mueller brings out some points on application and classroom reality that are worthy of consideration: good. (75, 85, 86, 115)

PAULL, MICHAEL. "Invention: Understanding the Relationship between Sensation, Perception, and Concept Formation." CCC, 25 (May 1974), 205-209. [85]

Finding that students rely on conventional interpretations of experiences and classroom clichés, Paull and a colleague, Kligerman, devised a course which made students aware of their own thinking processes through sensation, perception, and concept formation. The course differentiates between perception and language and illustrates how the procedure enables the student

to discover material about a topic and improves the student's writing. After explaining the theory behind his course, Paull then gives some of the actual classroom exercises the students used in accomplishing the course's goals with some of the resulting student products. See also [86]. For the teacher concerned with invention and the internal persona: specific. (48)

PAULL, MICHAEL and JACK KLIGERMAN. "Invention, Composition, and the Urban College." CE, 33 (March 1972), 651-659. [86]

Paull and Kligerman's article describes how they incorporated rhetorical invention into the composition course to supply what they felt was previously lacking in the curriculum: "nothing . . . had pointed the way to developing in our students an awareness of cognition, of the ways in which sensation, perception and concept formation operate before one even begins to write." (26) In using rhetorical invention as a writing prerequisite, Paull and Kligerman desired for the students to be re-educated, emphasizing the knowledge of what was being done and why. The exercises used in the classroom, and discussed in the article, attempt to join the classroom's experience to those experiences in the "real" world (45), while illustrating the process of invention and concept formation to the student. This article includes several well-described, basically student-oriented exercises and their results. The first classroom exercise involves the use of "Happening" by Wallace Kaufman (75, 115), and the second and the third use "Meditation I" and "Meditation II" by John Donne. The third exercise also incorporates the use of non-representational drawings, while the fourth uses photographs. (91) Again, some practical exercises promoting discovery in the internal persona: specific.

ROUGHIER, HARRY and E. KRAGE STOCKUM. Getting Started: A Preface to Writing. New York: W. W. Norton & Company, Inc., 1970. [87]

In the first three sections of this text, Roughier and Stockum deal specifically with the reader-writer relationship, emphasizing several approaches and their effects on writing. The bulk of these three sections is devoted to student exercises and examples applicable to the classroom. For the teacher seeking a conventional approach to invention: applicable. (73, 79, 80)

STEWART, DONALD C. "A 'Real" Audience for Composition Students." CCC, 16 (February 1965), 35-37. [88]

In this article, Stewart deals with audience-awareness and invention. In order to create a real audience, Stewart attempts to combine both student writing and publication by having his students submit articles to magazines. This helps the students to generate or invent through an external persona-audience relationship. While this is a fairly general article it does present a sound exercise: good. (52, 71, 81, 82)

_____. The Authentic Voice: A Pre-Writing Approach to Student Writing. Dubuque, Iowa: Wm. C. Brown Company Publishers, 1972. [89]

Stewart's book shows influence by Wlecke and Rohman [70], since his approaches emphasize attitudes and perception and utilize journals, analogy, and meditation techniques. The strong point of the

book is the thorough, practical exercises and student examples. In this area it is a most useful tool for the teacher: specific. (73, 76, 80, 88, 90, 123, 130)

TROTMAN, C. JAMES. "Writing for the Disadvantaged: Journal Jottings." Classroom Practices in Teaching English, 1969-1970--Focus: Minorties Communicating, the Dream's Responsibility. Champaign, Illinois: NCTE, 1970. 12-14. [90]

Trotman goes beyond the general advantages that the journal has in the process of discovery and focusses on the advantages the journal has for the writer during this process. Three main advantages are given: it allows students to experiment with and discover the appropriate genre to each writing situation; it allows a means of catharsis; and it provides the student with individual instruction. For the teacher concerned with using journals, a relevant rationale: good. (69, 70, 76)

ZEBROWSKI, JOHN H. "Uses of Slides and Tapes to Heighten Creative Response." Classroom Practices in Teaching English, 1969-1970--Focus: Minorities Communicating, the Dream's Responsibility. Champaign, Illinois: NCTE, 1970. 18-19. [91]

Zebrowski gives two very detailed and concrete classroom applications of using slides and tapes to provoke invention in students and to later lead to a writing exercise. He found the first application, involving the use of photocopied slides, allowed the students to individually discover and structure

material. (85, 86) The second, using tape recordings, caused the student to discover his subject and organize his material with consideration of his audience. (98) His exercises not only promote inventive thought but also help the students to learn to focus: good. (79)

Research

CARLSMITH, J. MERRILL, BARRY E. COLLINS, and ROBERT L. HELMREICH. "Studies in Forced Compliance: I. The Effect of Pressure for Compliance on Attitude Change Produced by Face-to-Face Role Playing and Anonymous Essay Writing," in Alan C. Elms, ed. Role Playing, Reward, and Attitude Change: An Enduring Problem in Psychology. New York: Van Nostrand Reinhold Company, 1969. 113-133. [92]

The authors experimented with two groups to determine the affect that the dissonance theory has on the ability of high reward to produce lower opinion changes. The experiment also measured the amount of attitudinal changes between role playing subjects and those who completed the exercises by writing an essay. The results showed that under certain circumstances the dissonant theory proved correct while in other circumstances it proved invalid. It was also showed that the essayists had more of an attitudinal change, especially with increasing pressure for compliance, than did those role playing. This article would aid the creative teacher who wants to thoroughly control the role playing situation in connection with writing: good. (32, 74, 79)

ELMS, ALAN C., ed. Role Playing, Reward, and Attitude Change: An Enduring Problem in Psychology. New York: Van Nostrand Reinhold Company, 1969. [93]

Elms brings together fifteen research articles on attitudinal changes through role playing. These articles explain several things: how role playing works, whether high level rewards with role playing produce greater attitudinal changes, and what part cognitive dissonance plays. In his introduction, Elms further ties together these articles, noting other research in the field. The book also has a very thorough bibliography. For the teacher seeking some sound research in role playing: good. (32, 74, 92)

CHAPTER V

MULTI-OBSERVATION APPROACHES

Ray Kytle [113] points out in an analogy the problems existing with the classical approach to invention:

> To my mind, this traditional approach has all the merits of trying to teach someone how to bake a delicious cake by discussing the shape, size, texture, and taste of delicious cakes. Though a person so instructed may learn to recite the characteristics of a prize-winning cake, he is still not closer to being able to bake one himself. (p. vii)

In a similar way, Young [24] suggests that the modern rhetorical approaches to invention result from the "shift in interest from the products of cognitive processes to the processes themselves, from what is generated to the act of generation," from the "desire to achieve increasing understanding of, and control over, processes which are largely unconscious and intuitive" (p. 9). Young sees invention as being able to adequately answer these needs since modern works in heuristics has provided "a broader scope, a firmer

theoretical base, and more adequate methods" (p. 10).

One of these approaches to meet these needs is the tagmemic multi-observation approach (the trimodal approach in linguistic jargon), defined by Young and Becker [26] as a design "to guide the perceptive ability of the investigator by means of a well defined, complementary set of perspectives and a set or epistemological assumptions" (p. 459). In other words, this approach provides the student with a well defined system for observing a problem from several angles. This approach views new problems in a broader way, discovering a new range of features and new possibilities for development. This category covers the "more adequate methods" Young speaks of which are often borrowed from other disciplines. One of the prominent approaches is the tagmemic approach to invention, based on linguistic principles. For example, English [106] sees this linguistic approach as one of the "basic modes through which the human mind apprehends reality" (p. 139); that is, this approach forces the student to look at real things in a specific

way.

I also include sources that represent the field of business. For example, W. J. J. Gordon's work [108] has revolutionized executive productivity in major corporations and techniques suggested by Jack Taylor [119] and A. Osborn [117] are gaining popularity in business as well as education, and psychology. I have even included Don Koberg and Jim Bagnall's text [111], used in sociology, architecture, and English classes, which compares the discovery act to a journey in a very creative and imaginative fashion.

Therefore, while there are many variations to this approach, I have tried to include in my bibliography enough representative sources from various techniques that the teacher might find an appropriate one to use or at least be stimulated in devising his own approach.

Theory

MAIER, NORMAN R. F. Problem Solving and Creativity in Individuals and Groups. Belmont, California: Brooks/Cole Publishing Company, 1970. [94]

Maier compiles studies concerning individual and group problem solving conducted over a fifteen year period in the University of Michigan laboratory. The studies are divided into eight major groups, each group beginning with a series of questions pertinent to general problem solving theories. The first four parts deal with problem solving and the individual. Here, the relationships between learning and problem-solving are explored in detail. The next four parts are concerned with group problem solving with two major types of problem solving being explored. At the conclusion of the book Maier presents his ideas on how problem solving may be extended to all walks of life. This is a very thorough examination of the literature and research on problem solving within the last few years: excellent. (6, 96, 127)

RADCLIFFE, TERRY. "Talk-Write Composition: A Theoretical Model Proposing the Use of Speech to Improve Writing," in Research in the Teaching of English. VI, No. 2, Champaign, Illinois: NCTE, Fall, 1972. 187-199. [95]

Radcliffe's article gives information and a teaching model based on Zoellner's talk-write theory. [98] The research that Radcliffe includes shows that speaking during problem solving helps the subject see the problem more clearly, develope greater accuracy, produce

clearer ideas, concentrate attention on the goal, examine problems from different viewpoints, and distinguish basic puzzle relationships. His theoretical model considers all necessary variables and conditions. For the teacher desiring to experiment or study the talk-write approach to invention: good. (21)

SCHEERER, MARTIN. "Problem-Solving." Scientific American, 208 (1963), 118-128. [96]

Scheerer first historically views problem-solving, citing examples from C. Lloyd Morgan, Edward Lee Thomasdike, Wolfgang Kohler, Max Wertheimer, and Karl Duncker. However, the author focusses on his own work dealing with fixation in problem-solving. (39, 121) He gives several examples that illustrate the need for what the Gestalt psychologists call "reformulation" or "recentering" of thought. To illustrate this, Scheerer explains an experiment conducted with Maurice Huling which forced people to solve a problem with varying degrees of fixation toward the solution. Scheerer and Huling found several causes of fixation: beginning with an incorrect premise, seeing solutions previously in conventional or novel contexts, refusing a detour that presents possible delays to the solution, and accepting a habitual mode of response. However, Scheerer points out that any type of fixation may be continued due to too much motivation. Fixation, Scheerer found, may be overcome by a sudden shift in the viewing of the problem or object. However, Scheerer is unable to pin point how to bring about this sudden shift for the individual. This source simply points out the problems the teacher can anticipate in attempting to employ invention in the classroom: excellent. (36)

YOUNG, RICHARD. "Discovery in Tagmemic Rhetoric: An Exercise in Problem-Solving." in Studies in Language and Language Behavior: Progress Report No. VII, Ann Arbor: Michigan University, September 1968, 187-203. [97]

Young argues for the use of the tagmemic-based discovery procedure which is "somewhat comparable to classical invention but more economical and systematic and with a wider range of application." Young prefaces his remarks by illustrating the use of the tagmemic systems as an alternative for invention. Stating that in 1963 Kitzhaber found that two-thirds of the writing assignments in composition were given in connection with literature (44), Young demonstrates how this technique can be used to discover the theme of literature. This suggested technique is easily applicable to the teaching of composition: excellent. (26, 99, 106, 118, 120)

ZOELLNER, ROBERT. "Talk-Write: A Behavioral Pedagogy for Composition." CE, 30 (January 1969), 267-320. [98]

Zoellner shows concern for the "instrumental conceptual constructs"--the metaphor used to teach. His principle argument is that theory and practice in English is dominated by the outdated think-write metaphor. The ineffectiveness of this metaphor is witnessed by the numbers of students who write as poorly upon leaving the university as they did upon entering it. Since students often respond to writing in uncreative, unrealistic ways due to learned behavior (39), Zoellner suggests a talk-write metaphor be used to free them. He suggests that this approach gives students something

manipulative and observable to work with, helps aid in ridding of generalizations, and instructs the student of his uniqueness and individuality. (9) He also gives a very thorough explanation of the theory on reflex and operant conditioning and how this affects student ability and the classroom atmosphere. A very thorough theoretical study that can be applied by a creative teacher: excellent. (21, 95)

Practice

BECKER, A. L. "A Tagmemic Approach to Paragraph Analysis," CCC, 16 (December 1965), 237-242. [99]

Becker's purpose is to show how tagmemics can be extended to the description of paragraphs, stating that the concept of tagmemics is useful in the rhetorical analysis beyond the sentence. Tagmemics is well defined, with Becker giving illustrations of this extended use of tagmemics. While this is a little technical, and basically applies to paragraphs, the implications for use in invention are present and elaborated on in [26] and [100]: good. (43)

BERKE, JAQUELINE. Twenty Questions for the Writer: A Rhetoric with Readings. New York: Harcourt Brace Jovanovich, Inc., 1972. [100]

Berke gives a good introductory section on finding a subject which covers classical topics, heuristics, and the act of making questions out of the topics. However, the most relevant section involves the writing of a short paper. Here Berke gives twenty different questions that can be used to generate subject material. Each of these questions is defined and elaborated on with suggested examples and exercises. This source

supplies the teacher with an epistemological approach to topics: specific. (3, 40, 41, 45, 51)

CLARK, CHARLES H. Brainstorming. Garden City, New York: Doubleday & Company, Inc., 1958. [101]

Clark's text aims at an administrative or business-oriented audience. However, this book proves to be a fair introductory text, dealing with generalized, fundamental points on the brainstorming technique. For example, Clark presents practical pieces of information throughout the book concerning the mechanics of starting, continuing and applying this technique with general rules and preparation procedures added. For the teacher seeking practical guidelines to brainstorming: applicable. (117, 119)

DAVIS, GARY A. Psychology of Problem Solving: Theory and Practice. New York: Basic Books, Inc. Publishers, 1973. [102]

In this book, Davis draws together major research studies concerning problem solving in psychology, business, and education. The third section, "Inquiry Activity: Study of the Compleat Problem Solving Experience," most easily applies to the classroom. This section is subdivided into sections on attribute listing, morphological synthesis, idea checklists, and "metaphorical thinking and problem solving: synectics and bionics." (42, 108, 117, 124) After a summarization of pertinent material each chapter ends with a "notes" section which gives sources, applicable exercises, or further information. The book also lists the games that can be used for problem solving. (75) This book is an excellent source of general information concerning problem solving with specific, applicable exercises: specific.

DE BONO, EDWARD. Children Solve Problems. London:

Allen Lane The Penguin Press, 1972. [103]

In this book, De Bono hopes that, by looking at how children think, the reader may better understand the thinking process. (4, 7, 14, 27) In his introductory remarks, De Bono stresses the need for teaching "thinking," teaching invention, in the classroom today. By examining the drawings of children ("brilliant thinkers"), he points out the ways in which the thinking processes work. The exercises, while aimed at children, can be carried on at any level. For example, De Bono gives the problem of stopping a cat and a dog from fighting--basically a political problem related to stopping different ethnics from fighting with each other. For the teacher seeking information about the invention-creation mental process and innovative exercises: specific. (18)

_____. Lateral Thinking: Creativity Step by Step.

New York: Harper and Rowe Publishers,

1970. [104]

De Bono compares lateral thinking to insight, creativity, and humor. "But whereas insight, creativity and humor can only be prayed for, lateral thinking is a more deliberate process." In this book, De Bono explains the way the mind works and compares the benefits of lateral thinking to vertical thinking. While vertical thinking teaches the elimination of wrong solutions, lateral thinking helps generate creative solutions. The major part of his book, however, deals with the techniques of lateral thinking: generating alternatives, using the reversal method (117), applying brainstorming (101), and using analogy (130). The explanations are thorough, and the classroom exercises are superior and easily applied to teaching composition by a creative teacher: specific. (7, 14, 105)

DE BONO, EDWARD. New Think: The Use of Lateral Thinking in the Generating of New Ideas. New York: Basic Books, Inc. Publishers, 1968. [105]

De Bono defines "New Think" as "breaking out of the old, self perpetuating pattern and generating new ways of looking at things." As with De Bono's other work, [104], New Think involves the use of lateral thinking. In this text, he explores the differences between lateral and vertical thinking, the hindrances of dominant ideas and vertical approaches in generating new ideas (39), and the disadvantages of not using lateral thinking. He also gives visual exercises and several approaches and applications using lateral thinking. A thorough, interesting book which covers the basic principles of lateral thinking and can be applied by the creative composition teacher: specific. (14)

ENGLISH, HUBERT M., JR. "Linguistic Theory as an Aid to Invention." CCC, 15 (October 1964), 136-140. [106]

English sees tagmemics as a useful approach to further invention through content. In composition, tagmemics can be helpful through imitation and invention; English sees the latter as the most crucial. After explaining the basics of tagmemics, he applies a topical approach to it, listing the five areas of questioning: contrast, range of variation, distribution with respect to class, distribution with respect to context, and distribution with respect to matrix. (118) Although he does admit to some problems in using this system, English finds tagmemics to have far more positive qualities than negative. For the teacher seeking a basic, clear explanation of the appropriation of tagmemics for invention: specific. (26, 120)

EVANS, BERTRAND, "Writing and Composing." EJ, 48 (January 1959), 12-20. [107]

In this article, Evans shows more concern for the student's ability to learn to compose than to learn to write, stating that many teaching methods only teach writing. Since, according to Evans, students need to realize that composing cannot take place without ideas, he suggests that teachers help students work with ideas, not given topics. He also suggests giving students disparate elements to encourage objective and inventive thought. (50) Although the points are rather general, the suggestions are sound: applicable. (47)

GORDON, WILLIAM J. J. Synectics: The Developing of Creative Capacity. London: Collier-Macmillan, Ltd., 1961. [108]

Taken from the Greek, the work "synectics" means the joining of different and seemingly irrelevant elements. (50, 110) Gordon's book deals with groups which invent through synectics. Gordon also hypothesizes that people are more efficiently creative if they are informed about the psychological process, in which the emotional and irrational elements are more important than the intellectual and rational, and that the irrational and emotional elements clearly increase the amount of success in the problem-solving situation. (85) In this book, Gordon gives the historical background of synectic research, explains to the reader the psychological process being discussed, and gives dialogue to illustrate the practice of a synectic group. The section on play and irrelevance emphasizes the need to be able to freely handle new ideas and irrelevant pieces in order to gain new views and to invent. For the teacher seeking background and a successful, innovative approach: specific. (15, 104)

HOWES, ALAN B. "A Linguistic Analogy in Literary Criticism." CCC, 18 (October 1964), 141-144. [109]

Howes states that there are two approaches to writing about literature: one categorizes items of separate elements; the other applies a specific approach of integration. Using Pike's linguistic approach [118] accomplishes the latter goal and supplies new insights. Howes illustrates the use of Pike's method by applying it to Ezra Pound's "In a Station of the Metro." Howes also lists several advantages of this approach: it encourages flexibility; the student must consider a number of details before writing; it emphasizes transition and interrelationships and stresses the organic nature of the whole; and it promotes analysis and sysnthesis simultaneously, without forcing the material into a preconceived mold. For the teacher looking for an application of tagmemics to literature as a basis for invention: specific. (24, 44, 106, 120)

JENNINGS, E. M. "A Paradigm for Discovery." CCC, 19 (October 1968), 192-200. [110]

Jennings states that the concepts of merger, confrontation, and juxtaposition (108) serve to turn "barren musing" into "fruitful discovery." His argument is based on three assumptions: (1) we see the world in terms of words (27), (2) labels control our perception of objects, and (3) the ridding of preconceptions forced by vocabulary leads to discovery. (39) In a very detailed explanation, Jennings illustrates his theory and states that "just getting the normal, linear chain of association slowed down and under control is the first step in a conscious and deliberate paradigm for discovery." (124) A very thorough, slightly complicated, but innovative approach for the teacher of composition: specific. (14, 115)

KOBERG, DON and JIM BAGNALL. The Universal Traveler: A Soft-System Guide to Creativity, Problem-Solving and the Process of Design. Los Altos, California: William Kaufman, Inc., 1972. [111]

Koberg and Bagnall demonstrate that books promoting creativity can indeed be creative. In a visually and intellectually provoking, imaginary journey, the authors take the reader through a basic understanding of the creative process, through techniques of promoting discovery of ideas, to "side trips" which cover a myriad of such things as self-hypnosis, synectics (108), and creativity games (75, 102). The sections on analysis (112), definition, ideation and idea-selecting seem particularly fresh and applicable approaches to invention in composition. There are also several good charts and visual aids included in these sections. For the teacher seeking a source that practices what it preaches: specific. (14, 104)

KYTLE, RAY. "Prewriting by Analysis." CCC, 21 (December 1970), 380-385. [112]

Kytle states that most composition texts begin much later than the actual beginning of the composing process. While these texts often advise students that they must know what they will say before writing, this "advice is meaningless to the student who doesn't know, and can't discover what it is he wants to say. What the composition student needs is knowledge of specific prewriting strategies which he can use to discover limited aspects of his subject . . . which he can use to order and structure his argument." Kytle suggests using values as a basis for expository and argumentative writing. He states that by developing a strategy based on values the students can explore subjects from varying viewpoints and complexities and can discover

various classifications. (58) He gives a three stage process: (1) the explorative and discovery stage, (2) the limitation analysis of a limited subject, and (3) thesis formation. Kytle supplies some very detailed examples of leading class exercises in invention: good. (113)

KYLTE, RAY. Prewriting: Strategies for Exploration and Discovery. New York: Random House, 1970. [113]

Kytle's text concerns exploration of the subject, discovery of attitudes and ideas pertinent to the subject, and the organization of these ideas into an effective arrangement through the use of analysis, analogy, brainstorming (119), or systematic inquiry. (117) These four methods are each discussed in individual sections which give student outlines and student and professional writing examples illustrating the method. Questions and writing suggestions conclude each section. For the teacher seeking a basic, applicable teaching program utilizing invention: good. (69, 70, 89, 123, 130)

LARSON, RICHARD L. "Problem-Solving, Composing and Liberal Education." CE, 33 (March 1972), 628-635. [114]

Larson approaches the use of invention in connection with composition under the label of "problem-solving." In this article he describes not only how problem-solving can be used in composition but also how this approach would better serve the goals of liberal education. He defines problem-solving as "the process by which one moves from identifying the need to accomplish a particular task to finding a satisfactory means for accomplishing that task." The model

he gives of a problem-solving approach is divided into eight sections: (1) defining the problem, (2) determining why the problem is a problem, (3) listing goals that must be accomplished, (4) determining priorities among the goals, (5) discovering possible procedures to attain goals, (6) predicting the possible outcome of such procedures, (7) weighing the choices, and (8) final evaluating of the seemingly superior choice. Larson demonstrates this model in Swift's "A Modest Proposal." For the teacher seeking a thoroughly explained, practical approach to composition through problem-solving: specific. (16, 129)

LUTZ, WILLIAM D. "Making Freshman English a Happening." CCC, 22 (February 1971), 35-38. [115]

Lutz sums up the main points he holds about writing: writing is creative; the classroom environment presently does not allow creativity; approaching writing as a creative process demands a change in physical environments and in the process taught; and one approach to writing is to make the creative process a happening which would inevitably lead to complete restructuring of the academic system. According to Lutz, a "happening" is juxtapositioning, where experience is created from which students can write. He gives specific classroom examples of approaching invention through happenings: good. (75, 84, 110)

ODELL, LEE. "Piaget, Problem-Solving, and Freshman Composition." CCC, 24 (February 1973), 36-42. [116]

Odell states that "if signigicant improvement in writing comes only as students grow intellectually, we shall have to understand and assist students with that growth. And to do so, we shall have to be familiar with recent work in the psychology of human development." (6) Quoting Piaget, Odell states that all human development is the result of the awareness of

disequilibrium (39, 46), resulting in all human activities which lead to problem-solving. After laying the theoretical groundwork of Piaget's assumptions, Odell answers several questions about the applicability of Piaget's principles to English. Odell then applies Piaget's principles by utilizing Pike's techniques of discovery [118] in a composition class. Although this approach often frustrated the students with the large amount of work required, the student's writing significantly improved. Odell supplies a different approach to Pike's discovery technique: specific.

OSBORN, ALEX R. Applied Imagination--Principles and Procedures of Creative Problem-Solving, 3rd ed. New York: Charles Scribner's Sons, 1962. [117]

Osborn states that the "creative imagination is itself a basic tool in the acquisition of knowledge; for knowledge becomes more usable when imaginatively synthesized and dynamically extended." The first three chapters of his book concern the varying influences on creativity, while the following chapters deal with techniques for training creative thinking, such as role-playing (74, 92, 93), problem-solving (114), analyzing (112), associating (124), brainstorming (101), and questioning. Each of these techniques is discussed in individual chapters with exercises and bibliographies. This is a superior source of simple and useful discovery procedures applicable to the teaching of composition: specific. (119)

PIKE, KENNETH L. "Language--Where Science and Poetry Meet." CE, 26 (January 1965), 283-292. [118]

Here Pike explains the two phases of tagmemics. The first is viewing language "as a structured collection of particles, as a hierarchial sequence of waves,

and as a field network of relationships." (106) Pike demonstrates the first phase of the theory by focussing on a sonnet. The second phase of theory explains that language cannot be viewed as only a structure of particles, waves, and fields but must involve the working together of all three. After illustrating this phase, Pike ends with a short discussion of how this theory may be applied in composition. This article is essential reading for the teacher wishing to employ any of the tagmemic-based invention approach: specific. (43, 82, 120)

TAYLOR, JACK W. How to Create New Ideas. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1961. [119]

Taylor ignores the cookbook approach to creativity and invention. Instead, he first explains and defines invention and its hindrances. After supplying this groundwork, he gives an extensive list of possible thought-generating methods: brainstorming (101), the Gordon technique (108), attribute listing, catalog technique, free association (124), forced relationships (110), check-list technique, and analysis. However, Taylor continues even further and gives several points on finding the appropriate methods for the appropriate problems. (3) An amazing list of exercises are included along with a substantial bibliography on related material. A fine source on theory and method in invention: specific. (104, 111)

YOUNG, RICHARD E., ALTON L. BECKER, and KENNETH L. PIKE. Rhetoric: Discovery and Change. New York: Harcourt, Brace & World, Inc., 1970. [120]

Combining linguistic theory and rhetoric, this book aims "to teach the student to solve and see, and share

what he has seen." Chapters 2-12 are of the most interest, with Chapters 2-7 emphasizing the discovering of material, seeing relationships, and analyzing and solving problems. This text puts together a thorough tagmemic-based discovery approach that can be easily understood by those with little or no linguistic background: specific. (26, 99, 106, 118)

Research

ASHER, JAMES. "Towards a Neo-Field of Problem-Solving." Journal of General Psychology, 68 (January 1963), 3-8. [121]

Asher sees two types of problem-solving: (1) those beginning with an incomplete idea, such as being supplied a problem without a solution, and (2) those having a completed system, such as seeking alternative solutions to a previously solved problem. Asher states that two major problems stand in the way of invention. (39) The first involves concept constancy; the second involves the major block of our defenses such as the transformation of problems by breaking previously held concepts and inventing alternative concepts. Asher's overall approach extends the Gestalt position. His neo-field theory tries to establish thinking activity steps that, when taken, produce the best field for generating solutions. This article points out the major types of problem-solving and the major problems with problem-solving to be faced by the teacher: good. (96)

BURKE, RONALD, NORMAN MAIER and RICHARD HOFFMAN.

"Function of Hints in Individual Problem-Solving."

American Journal of Psychology, 79 (September

1966), 389-399. [122]

In this research problem, Burke, Maier, and Hoffman chose over 200 men to work on Maier's Hatrack Problem. These researchers supplied the participants with hints at various intervals with the researchers drawing conclusions as to the value of the hints and their placement. This study could be of value to the composition teacher who uses the problem-solving technique and wants to supply aid to the student yet does not know to what degree or when: good. (94, 127)

DREISTADT, ROY. "The Use of Analogies and Incubation

in Obtaining Insight in Creative Problem-Solving."

Journal of Psychology, 71 (March 1969),

159-175. [123]

Dreistadt combines several previously tested theories on analogy and incubation in invention to see the results when tested in a problem-solving situation. The participants in the experiment were given two different types of problems and handled these problems in various ways. For example, some just worked on the problem; others were given pictorial analogies of the problem; others were allowed to put the problem aside for an "incubation period" (126); still others had both the pictorial analogies and the incubation period. The results showed that analogies helped in problem-solving. (113, 130) However the best results were gained by those using the combination of analogies and incubation period. This study points out to the teacher the

usefulness of analogies and thinking time in discovery procedures: good. (69, 70, 89)

FREEDMAN, JONATHAN. "Increasing Creativity by Free Association Training." Journal of Experimental Psychology, 69 (January 1965), 89-91. [124]

Freedman's experiment found that those trained in free-association scored higher on the Remote Association Test, a test on creativity than those who were not trained. The implications for composition are two-fold: there is a need to train students in some way to be inventive or creative, and training in association proves to be a particularly successful training approach: good. (102, 110)

GOLDNER, RALPH H. "Individual Differences in Whole-Part Approach and Flexibility-Rigidity in Problem Solving." Psychological Monographs, 71, No. 450 (1957). [125]

Goldner gave six series of tests involving verbal and perceptual problems to the participants in this experiment. The tests were scored on the whole-part approach and the flexibility-rigidity process. Goldner concluded from his experiment that (1) groups of equal intelligence respond differently in regard to the whole-part approach and the flexibility-rigidity process, (2) the whole-part approach is used best when applied to situations differing in content and degree of structure, (3) the flexibility-rigidity process is used best with tasks of similar structures, (4) the more structured the situation, the more closely related the whole-part approach and the flexibility-rigidity process are. While this report is rather technical, the information is of value to teaching preparation: applicable. (18, 33)

HUTTENLOCKER, JANET. "Constructing Spatial Images: A Strategy in Reasoning." Psychological Review, 75 (1968), 550-560. [126]

Huttenlocker deals with syllogistic reasoning and problem solving. (68) Huttenlocker proposes that material objects are imagined for the verbal statement of the first two premises. The ability to solve such problems, Huttenlocker theorizes, is involved in the actual spatial arrangement of these analogous images. (89, 113) The results from two experiments show that the spatial ordering of the problem has an effect on the participant's ability to solve the problem. Also Huttenlocker found using imaginary spatial items to be an economical and efficient ordering of problems, regardless of how abstract the compared categories may seem. This technical article would be worthwhile for the teacher whose students have difficulty discovering patterns for organizing material: good. (123, 130)

MAIER, NORMAN R. and RONALD BURKE. "Test of Concept of Availability of Function in Problem-Solving." Psychological Reports, 19 (1966), 119-125. [127]

Maier and Burke presented Maier's Hatrack Problem to 135 students in order to test the necessity of relevant experience in solving problems. They found that the participant's past experiences were not as important as his ability to generalize about similar problem situations, fragment past experiences in parts, and recombine these parts into a solution. (6, 130) "The ability to utilize experience rather than merely to have had it, therefore, becomes a crucial factor in problem-solving. . . .Thus superior problem-solvers seem better able to overcome sets, or directions, and hence are able to find greater resources in their past experiences than are less able problem-solvers who

have the same stored knowledge." This article implies several things for the composition teacher: unless students are taught how to be inventive with material then the information is not of much value, and wide ranges of possible approaches can be used, regardless of the student's background: good. (4, 94)

ODELL, CAMULUS LEE. "Discovery Procedures for Contemporary Rhetoric: A Study of the Usefulness of the Tagmemic Heuristic Model in Teaching Composition." Dissertation University of Michigan 1970. [128]

After supplying a psychological and philosophical rationale, Odell explains the composition program, based on tagmemics, that he designed. He found, as a result of the program, that the students more thoroughly analyzed data, that their essays had a more coherent organization of ideas, and that they were more capable of handling writing problems. For the teacher seeking the results of this type of approach: good. (26, 106, 109, 120)

WIDNEY, LOIS L. "A Study of the Use of a Problem-Solving Approach to Composition in High School English." Dissertation University of Nebraska 1971. [129]

Widney compared the use of problem-solving to the traditional composition approach in teaching high school students, attempting to establish the problem-solving technique's effectiveness. The results of the experiment showed that the problem-solving technique produced reflective thinking skills to a greater degree

than did the traditional approach. Also the problem-solving group had a significantly greater grasp of writing skills than the traditional group. For the teacher seeking the results for this type of approach: good. (52, 114)

WILLNER, ALLEN. "An Experimental Analysis of Analogical Reasoning." Psychological Reports, 15 (1964), 479-494. [130]

Willner answers two previously held questions about analogies: (1) what does analogical reasoning consist of as a process?, and (2) what do analogy tests test? In doing this,Willner describes several studies which investigate the analogical reasoning process under varying conditions. (126) Perhaps the most valuable section of this article for the composition teacher is the section entitled "Additional Variables Which May Be Confounded with Analogical Reasoning." Here, four problems in using analogy are cited: inadequate vocabulary, insufficient information, inability to transpose the analogy, and inability to maintain attention on the problem. This article supplies useful information for the teacher thinking of utilizing analogy: good. (69, 70, 89, 113, 123)

YOUNG, RICHARD E. and FRANK M. KOEN. The Tagmemic Discovery Procedure: An Evaluation of Uses in the Teaching of Rhetoric. ERIC. Washington, D. C.: Department of Humanities National Endorsement for the Humanities, July, 1973. [131]

Young and Koen researched the effectiveness of the tagmemic approach in improving student writing and student work on vaguely defined problems. Based on Young,

Becker and Pike's Rhetoric: Discovery and Change [120], Young and Koen devised an experimental course. The results showed higher quality results came when students were involved in an intellectual activity. Also the students were more capable of stating and analyzing problems. While the students persisted in some stylistic and grammatical errors, at the end of the course the students wrote clearer, more persuasive papers. Again, tested results that indicate the benefits of the tagmemic approach to invention: good.

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